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The Foundation places itself at the service of international co-operation in the academic and scientific field by

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(c) lending its collaboration in other ways to further international scientific exchange in the widest sense of the term.

Negotiations with other institutes and organizations regarding co-operation on the production of this Bulletin are still proceeding. So far the following bodies have promised to lend their co-operation:

Ministry of Education, Arts and Sciences
Royal Netherlands Academy of Sciences and Humanities
Netherlands Organization for Pure Scientific Research (Z.W.O.)
Central National Council for Applied Scientific Research in the Netherlands (T.N.O.)
Bureau for International Technical Assistance of the Ministry of Foreign Affairs
Royal Tropical Institute
Institute of Social Studies
International Training Centre for Aerial Survey
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THE NETHERLANDS CONTRIBUTION TO THE INTERNATIONAL GEOPHYSICAL YEAR

The International Geophysical Year will not be entirely unknown to the readers of this bulletin. This year will differ in many respects from what we normally understand by the term "year".

In the first place, it will last at least one and a half times as long as the usual 12 month period. Although the Geophysical Year will run from July 1, 1957 to December 31, 1958, in most countries the activities connected with it commence a long time in advance of the official beginning and at many stations they will also continue after December 31, 1958. This year is unusual in the second place, because the world will then be witnessing an internationally organized scientific enquiry of unparallelled scope and intensity. Thousands of investigators will take part and the cost will run into astronomical figures. Although the actual amount is not known, since each country will finance its own expeditions and observations, it can safely be estimated that the total cost involved for all countries taking part will not lie far short of one hundred million pounds sterling.

In order to obtain a clear idea of the contribution which the Netherlands and their Overseas Territories will be making to the activities to be carried on during the International Geophysical Year, it is necessary to provide some brief account of the fields of geophysical research which this international effort will cover. These fields are as follows:

Meteorology

The aim of the meteorological programme will be to obtain greater knowledge of the general circulation of air in the upper troposphere and in the stratosphere. This will be done by sending up sounding balloons with radio equipment to great heights. On special days – world days – four of these balloons will, as far as possible, have to be sent up each day from every station.

The meteorologists are also interested in the chemical composition of the air, in its carbondioxyde content, for instance, in view of the belief that the atmosphere now contains more of this than it did in the previous century as a result of the sharp increase in the consumption of solid and liquid fuels.

Geomagnetism

It is here a question of the phenomena occurring during magnetic storms. It is known that these are due to electric currents at a high level in the atmosphere, though little is yet known of the course they take and of the way in which they come about. It is, however, known that these currents are connected with eruptions on the sun as a result of which enormous waves of solar gas are slung of. It sometimes happens that the particles thus discarded by the sun end up in the vicinity of the earth; they are then able in one way or another to penetrate into the earth's atmosphere and give rise to electric currents in the polar atmosphere. But an electric current can also develop in the uppermost layers of the atmosphere in the equatorial area (the equatorial electrojet). In order to be able to study this strange phenomenon, of which practically nothing is as yet known, it is necessary to set up geomagnetic stations in the tropical areas.

Polar Lights (Aurora borealis and aurora australis)

The great density of stations in the polar areas will make it possible to obtain a better picture of the distribution of the aurora borealis and the aurora australis. Spectra of these sometimes colourful light phenomena will reveal the processes of the radiation of polar light and at the same time afford indications of the gases present in the rarefied uppermost layer of the atmosphere.

Ionosphere

It is expected that more than a hundred sounding stations will be in action to investigate the ionosphere, the complex of ionized layers at heights between 50 and 300 miles above the earth. By means of radio signals, such sounding stations will, at regular intervals, determine the characteristic features of these layers, which are of such very great significance to wireless communications. It is also desired to investigate the passage of isolated ionized clouds and other irregular phenomena in the ionosphere, and it is hoped to be able to draw conclusions regarding the speed and direction of the wind in the uppermost layers of the atmosphere.

Activity of the sun

Various astronomical observation posts will report disturbances and eruptions on the sun. The radio-telescopes erected at different spots in the world will keep a special look-out for radio outbursts connected with any eruption. An international warning service is coupled to this chain of observation posts and will issue predictions regarding expected disturbances on the basis of phenomena reported. Special world days will be fixed on which disturbances are expected; on these world days all geophysical stations will step up their activity.

Cosmic Radiation

During the geophysical year the highly penetrating radiation which constantly descends upon the earth out of space will be measured by means of counting instruments and photographic plates, which will be kept floating for hours in the stratosphere, suspended from gigantic balloons, known as skyhooks. Since it has recently proved that cosmic radiation increases during the occurrence of eruptions on the sun, it is even planned to send up counting instruments in rockets on the occasion of exceptional events of this kind.

Determination of longitude and latitude

Although the taking of astronomic-geodetic measurements is not bound to any particular year, like the observations of the polar lights, for example, they will be included in the general programme in view of the desirability of taking simultaneous measurements at various places. The aim is to arrive at a precise determination of longitude. This determines local time and a highly precise observation of the local time will bring irregularities in the rate at which the earth rotates about its axis clearly to light.

Glaciology

This subject is of particular importance for the polar regions. It is desired to compile an inventory of the ice masses on the polar caps and to measure the total volume of land ice.

Behind these investigations lies the question of changes in the earth's climate. It is known that since the end of the previous century the temperature in Europe, and probably in the North Pole area as well, is rising, which is apparent from the withdrawal of the ice. It is not certain, however, whether this is the case all over the world or whether this phenomenon is confined to certain areas of the earth's surface.

Oceanography

Research in the oceans is also included in the programme. The subjects to be studied are: the circulation of the water in the ocean, the transmission of heat between sea and air, the action of low and high tide, ocean swell and the structure of the sea-floor.

Seismology

The setting up of several geophysical stations in uninhabited areas provides a splendid opportunity of recording earthquakes with a much finer and – more importantly – much more homogeneous network of seismographs than is usually available.

Gravimetry

The same applies to this branch of geophysics as to seismology; since many interesting stations will be staffed at the time, it will not require much extra effort to take measurements of the force of gravity at places where this could not otherwise be easily performed. In addition very small periodical changes in the force of gravity will be registered at a few points, which changes provide evidence of a high and low tidal motion in the permanent earth's crust.

Radio-activity of air and water

Netherlands circles have urged the regular measurement of the artificial radio-activity with which the atmosphere and the water of the oceans is being increasingly contaminated. As far as geophysics is concerned, such an inquiry provides an opportunity of studying the circulation of the air and of seawater, since it is possible to trace the course taken by a quantity of air or water containing radio-activity. A number of countries have promised to co-operate on the performance of this check.

The Netherlands Contribution

The Netherlands share in the Geophysical Year activities is very modest in scope, compared with the large-scale and costly enterprises being planned in various other countries. In the Netherlands, existing bodies working in the field of geophysics will carry out the programme, insofar as their finances and the size of their staff permit. The Royal Netherlands Meteorological Institute will arrange for the sending up of radio-equipped sounding balloons to the required heights; it will determine the radiation equilibrium in the atmosphere and measure the amount of radio-activity in the air and in the rainfall. Variations in earth magnetism will be registered in the geomagnetics observatory at Witteveen in Drenthe.

Internationally-planned research into the ionosphere will also be carried out at the Meteorological Institute. Here sounding transmitters are available, which automatically sound the structure and the characteristics of the ionosphere at half-hour intervals, measure the absorption in the D-layers and determine wind speeds in the ionosphere.

These activities already form part of the Institute's daily routine activity. The Netherlands P.T.T. (General Post Office) will also carry out soundings of the ionosphere and takes measurements of the speed of drifts in the uppermost layers of the air at its stations at Kootwijk and Leidschendam.

The sun's activity will be studied by the Astronomical Observatory at Utrecht. Spectral measurements of solar flares will be taken and radio-eruptions on the sun will be analyzed. The radio-radiation of the sun will also be measured at the recently established Radio Astronomical Observatory at Dwingelo. The P.T.T.'s Ionosphere and Radio Astronomy Department is also highly active in the field of solar observation. At its receiving station at Nederhorst den Berg two parabolic mirrors are in daily use to register the radio-radiation of the sun on various wave-lengths. The station also has a heliostat with a Lyot filter and an interferometer for observing eruptions and other disturbance phenomena on the sun. The Netherlands P.T.T. has made its services available for the international warning service. It has taken on the task of receiving and retransmitting reports between the East and the West, on which the "alerts" and "special world days" depend.

In the field of cosmic radiation the Physics Laboratory of the University of Amsterdam will be working with ionization chambers and counting instruments. A neutron monitor is being installed in co-operation with the Netherlands P.T.T. The oceanographical programme will be carried out for a part on board two Dutch weather ships, regularly stationed in the Atlantic Ocean. Here measurements will be taken of the temperature of the seawater down to very great depths, of the salt-content, the amount of oxygen and the speed of the currents.

Activity beyond the Netherlands frontiers will not centre around the North Pole area, as it did in former "polar years", but will be sited in the Overseas Territories. The Technological University at Delft will be setting up an astronomical-geodetic station on the island of Curaçao. Here attention will be devoted to a precise determination of longitude and latitude, from which fluctuations in the rate of the earth's rotation can be deducted. New geophysical stations will be set up at Paramaribo in Surinam and at Hollandia in New Guinea in close co-operation between the Royal Netherlands Meteorological Institute and the Netherlands P.T.T. The equatorial area is quite as important as the polar regions as far as research into the ionosphere and into certain of the phenomena of earth magnetism is concerned. Paramaribo and Hollandia both lie in the equatorial belt and in the strips along the 70°W and 140°E meridians specially selected for research work during the Geophysical Year; thus they have a double justification; moreover, they close large gaps in the network of stations. The research to be carried out in these places will be of three kinds, consisting of investigations in the field of geomagnetism, soundings of the ionosphere and registration of radio-radiation from the sun. As part of the meteorological programme the Government of Netherlands New Guinea will be carrying out a number of observations of the upper winds by means of pilot balloons. The global radiation of the sun will also be measured by means of solarimeters.

Although the Netherlands participation in the Geophysical Year is modest in scope, thanks partly to the co-operation of the Governments of the Overseas Territories concerned, the Netherlands – with three important equatorial stations in operation – will be able to make a contribution to international co-operation in the field of geophysics not altogether out of harmony with the work to be undertaken by the other countries of Europe.

J. VELDKAMP [1])

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[1]) Prof. Dr. J. Veldkamp is secretary of the Netherlands Committee for the International Geophysical Year.

THE NETHERLANDS ORGANIZATION FOR PURE SCIENTIFIC RESEARCH (Z.W.O.)

Foundation

It was realized after the second world war that the safe lead that pure scientific research had always had over applied science had as good as disappeared. This was particularly true of the Netherlands, where practically all research work had been at a standstill for five years. During the war years the great powers spared no effort or expense in their endeavour to occupy the first place in the field of technical research, but these efforts were, naturally enough, largely confined to applied research.

In the Netherlands, in 1945, the plan was conceived of lending powerful government support to pure scientific research. As far as the applied sciences were concerned, the Central National Council for Applied Scientific Research in the Netherlands (T.N.O.) had been in existence since 1932, and after much preliminary deliberation and soundings taken in the other countries, it was decided to set up the Netherlands Organization for Pure Scientific Research, known from the initials of its Dutch title as the Z.W.O., as a complement and counterpart to the T.N.O.

In its early days the Z.W.O. encouraged pure scientific research with funds which increased by a modest amount each year, until the Pure Scientific Research Act was passed in 1950, conferring upon the organization its official status as a public corporation.

When the organization was founded, the view was taken that the aid it granted should not be limited to one or two fields but should be extended to cover all branches of knowledge. It was also decided that the administration of the organization's funds should not be placed in the hands of the government but be largely left to the scientists and scholars themselves.

Aim

In the relevant act the aim of the Z.W.O. is defined as follows: "To promote pure scientific research both in the universities and academic institutes and elsewhere; to co-ordinate this research as far as necessary by all expedient means, particularly by awarding grants".

As long as there exists no body to subsidize applied research in the Humanities and Social Sciences, these, too, fall within the scope of Z.W.O. aid. Thus the organization's task is a wide one. It is essential to preserve a large measure of flexibility as regards the ways in which assistance is granted and co-ordination effected.

Since pure scientific research has been carried out from of old at the universities, the Z.W.O. has far less need than the T.N.O. to set up institutes of its own.

Structure

The Z.W.O. has a Council, an Executive Board, a Director and Advisory Committees.

The Council is composed of representatives of all the universities and other institutes of higher education, a representative of the Ministry of Education, Arts and Sciences, a representative of the T.N.O., and five members from outside the field of higher education.

The Executive Board is made up of Council members.

The director is in charge of the Z.W.O. office and at the same time functions as secretary to the Council and Executive Board, being responsible for preparing and facilitating the decisions of these bodies and the execution thereof.

The Executive Board is assisted by four permanent Advisory Committees, the majority of the members of which come from the world of higher education. These committees comprise:
an advisory committee on the Humanities and Social Sciences
„ „ „ „ „ Medical Sciences
„ „ „ „ „ Exact Sciences
„ „ „ „ „ Biological Sciences

Finances

The Z.W.O. has at its disposal a fund for pure scientific research, which fund is kept supplied by the State, i.e. by an annual grant from the Ministry of Education, Arts and Sciences.
In recent years these grants have been as follows:

Dutch guilders (10 guilders = approx. £ 1, U.S. $ 2.60)
1950: D.fl. 1,474,000; 1951: 1,870,000; 1952: 2,000,000; 1953: 2,625,000; 1954: 3,125,000; 1955: 3,625,000; 1956: 4,030,000.

Mode of operation

The Z.W.O.'s principal task is to promote pure scientific research. This is done mainly by the grant of financial assistance, which can take the following forms:

1. Ordinary subsidies, where the main emphasis is laid on research. The financial aid granted may be used for travel purposes, the issue of scientific publications, the acquisition of instruments and material, and payments to research workers and their assistants.
2. Subsidies to scientific journals.
3. Scholarships for short journeys for the purpose of study, including visits to France made under an exchange convention with the Centre National de la Recherche Scientifique.
4. Subsidies for the acquisition of microfilms and/or photo copies. Reading apparatus can also be loaned out under this arrangement.
5. Fellowships, designed for younger university men who have completed their studies and who may be expected one day to occupy important positions in the world of science. These fellowships are intended to provide research workers with an opportunity of devoting themselves for a whole year to one or more research projects in their particular field of knowledge, either at home or abroad. Here, therefore, the emphasis lies on the individual himself rather than on the research project concerned.
   The aim in granting these fellowships is to increase scientific manpower.

Any person who is of the opinion that he may be eligible to receive assistance under one or other of the above-mentioned categories may submit a written application for such assistance, which application must state the significance to science of the object concerned, the programme of research and an estimate of the costs involved. In the case of Z.W.O. fellowships, however, it is necessary for the application to be submitted by at least two other persons and not by the individual concerned. The advisory committees examine the applications chiefly on their scientific merits. The Executive Board, in considering the applications, also takes the financial aspects and the urgency of the research project into consideration. One of the requirements attached to the grant of subsidies is that a detailed

report on the results achieved must be submitted after the work has been completed. As a rule the Z.W.O. office itself takes charge of the financial arrangements involved.
The organization's second task is to co-ordinate scientific research. Close contact is maintained for this purpose with such bodies as the Ministry of Education, Arts and Sciences, the Universities and other Institutes of Higher Education, the Royal Netherlands Academy of Sciences and Humanities, the T.N.O. and with similar institutions abroad.

Of the above-mentioned amounts, about one third was devoted to the acquisition of instruments and materials and another third to payments to scientific research workers.
The table shows that the subsidies granted for research in the exact sciences have been consistently larger than the total of the subsidies granted in other fields.
The research work carried out in the field of the exact sciences includes projects of a number of institutes which receive very large sums. These are:

TABLE SHOWING THE NUMBER AND AMOUNT OF SUBSIDIES GRANTED DURING THE YEARS 1950–1957 DISTINGUISHED ACCORDING TO THE FIELDS COVERED BY THE FOUR ADVISORY COMMITTEES

	Humanities and Social Sciences		Medical Sciences		Exact Sciences		Biological Sciences		Total	
	Amount	Number	Amount	Number	Amount	Number	Amount	Number	Amount	Number
	D.fl.		D.fl.		D.fl.		D.fl.		D.fl.	
1950	184,800	35	247,100	40	915,500	28	53,800	17	1,401,200	120
1951	148,800	40	138,700	34	1,391,900	24	63,600	13	1,743,000	111
1952	190,500	51	126,000	29	1,478,900	23	147,100	20	1,942,500	123
1953	239,700	64	109,200	24	1,918,700	24	170,600	26	2,438,200	138
1954	342,700	68	141,500	26	1,999,300	28	185,200	32	2,668,700	154
1955	386,800	62	154,000	27	2,704,700	29	239,900	33	3,485,400	151
1956	577,500	79	155,000	23	2,789,900	26	279,700	35	3,802,100	163

1. The Foundation for Fundamental Research on Matter F.O.M., (under which foundation falls the Institute for Nuclear Research – I.K.O.) 1954: D.fl. 1.200,000; 1955: D.fl. 1,790,000; 1956: D.fl. 1,900,000.
2. The Mathematics Centre. 1954: D.fl. 290,000; 1955: D.fl. 297,000; 1956: D.fl. 337,000.
3. The Foundation for Radio-astronomy (Radio telescope at Dwingeloo) 1954: D.fl. 256,000; 1955: D.fl. 320,000; 1956: D.fl. 220,000.

On the other hand, the number of subsidies granted has always been the highest in the field of the humanities and social sciences. In latter years about a third of these were for learned publications.
Research workers have worked with Z.W.O. aid in every continent except Australia. Next after Western and Southern Europe, the largest number of study trips were to destinations in the Middle East and the United States of America.
Although the sum devoted to scientific research in the Netherlands, expressed as a figure per head of population or as a percentage of the national income, is still appreciably less than in the United States or in England, the annual increase in the State grants to the Z.W.O. (and the T.N.O.) show clearly that the promotion of science is regarded as of vital importance in this country as well.

H. G. A. Korteweg[1]

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SOME FINDS DURING THE ARCHAEOLOGICAL EXCAVATIONS ON THE MOUND TELL ES-SULTAN NEAR JERICHO (JORDAN)

The British School of Archaeology at Jerusalem (Jordan) has carried out excavations for five seasons on the mound tell es-Sultan near Jericho (er-Riha), under the direction of Miss K.M. Kenyon. By courtesy of the Netherlands Organization for Pure Scientific Research (Z.W.O.) which provided me with financial aid, I shared in the actual digging on the mound during the last two seasons.

There has already been a great deal of archaeological research into the remains of this old site. Scientific digging started in 1910 when a German expedition, led by C. Watzinger and E. Selling, dug several occupation levels of the site, but since at that time there were hardly any reliable means of dating the finds, a new expedition was necessary to adjust the results. This was undertaken from 1930 until 1936 by J. Garstang, who brought much new information to light. The fact, however, that many questions seemed to need further investigation and that the technique of stratigraphical digging had improved since that time stimulated Miss K.M. Kenyon to start a third expedition to the site. Annual reports have been published in the Palestine Exploration Quarterly since 1952.

In a deep sounding under Early Bronze Age levels, Garstang had found a long series of neolithic strata, which seemed to be of great importance not only for the history of Palestine but also for our knowledge of the Late Stone Age in the Near East, especially in Egypt and Mesopotamia. So the present expedition set itself three distinct aims:

a. to throw new light on the Late Bronze Age city, which may have been the city that was destroyed at the time of the arrival of the first Israelite tribes led by Joshua;

b. the chronology of the Bronze Age at Jericho, which has now resulted in the discovery of many more occupation levels than could be supposed to exist from Garstang's findings;

c. a large-scale inquiry into the nature of the Late Stone Age at tell es-Sultan and its development.

A survey of the results obtained so far will be found in the June 1957 issue of "Antiquity and Survival"[1]), contributed by the present author.

Co-operation with the British expedition proved most satisfactory in every respect. I was given full responsibility for digging in one sector of the neolithic settlements, known as the plaster-floor culture. This culture, hitherto unknown in the Near East, is characterized by several distinct features, the typical way of constructing fairly solid houses being one of them. Although only parts of houses were found in the space available for the square to be dug, we were able to find a good deal of information about them. There were houses consisting of several rooms, all with an adjacent courtyard. The walls were built of sun-dried mud bricks, cigar-shaped and flattened underneath, with a double row of thumb-impressions running over the upper side, like a herring-bone pattern. These bricks were sometimes placed over a row of undressed riverstones as foundations. They were laid in single or double rows and packed in mud of almost the same composition as the bricks.

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It seems to me that the deep "thumb" impressions in the bricks were no more functional than the shape of the bricks, that could not be fitted together without thick layers of mud. Since these houses are about the first that were built on earth and represent a new invention in a time in which wood was still plentiful in Palestine, the use of mud for building a shelter may have involved a ritual act that prescribed the form of the bricks under the supervision of the Spirit of the Spring. The floors and walls of the houses were covered with a film of plaster, smoothed with polishing stones, and coloured with yellow or bluish dye. Mats were often discovered on the floors. This settlement must have existed a long time, and the houses were rebuilt many times, after the walls had decayed too far to be repaired. Numerous stone tools and implements were found, made of flint and limestone. When the roofs collapsed during an earthquake, people and animals were buried under the debris, and by means of all the material now available it will be possible to study the early beginnings of agriculture and the domestication of animals.

This settlement was protected by huge walls, built of riverstones and boulders, and a high stone tower was recently found, with a passage and a staircase inside, leading to the top. This is a most remarkable piece of architecture, since the stairs and the roof were so constructed that we were able to use the staircase almost nine thousand years after it had been built.

There is evidence that this was not the first settlement near the spring. Excavations were carried down to bedrock and under the plasterfloor culture were found houses of another type, a rather more primitive form with curving walls and bricks that sometimes seemed to have been baked in fire. This earlier culture used obsidian in larger quantities than the next culture for making tools.

The study of these cultures requires the co-operation of different scientists, anthropologists, prehistorians and others, whereas the actual task of digging up the hitherto unknown civilization excludes rapid progress with research.

The people of these cultures were obviously cannibals, a fact to which the fire places bear witness. No graves have been found, but it seems that the bodies of the dead were discarded after the head had been cut off and buried under the floor, often without the mandible. The fireplaces were easily recognized and often contained very interesting small objects, made of precious stone, like beads, or bone, carbonized in the heat of the fire. Traces of a cult were very scanty. Clay figurines not hardened in the fire may easily have decayed. We may infer magical practice from miniature axes, made of green stone, like many small beads, and a miniature bone mask, showing two eyes and a nose. In another section digging into these cultures brought to light a clay figurine of a fertility demon. Once a huge round clay basin was found, belonging to the plaster-floor culture, that emerged from the floor in a room and that was plastered with several layers. Underneath we found traces of a number of child burials in the foundations of this floor. This may have been another indication of a certain type of worship practised by this people.

Since the plaster-floor people built perfect houses right from the beginning at Jericho, it is supposed that they must have developed this technique elsewhere, not too far remote from this place. Their presence in the neighbourhood accounts for the fact that a great defence system was built against attackers. In fact, remains of the same culture were found in the Wadi Shueib, near the road to Amman, East of the Jordan.

It is hoped to complete the excavations in the autumn of this year.

Dr. H. J. FRANKEN [1]

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[1] Dr. Franken (c/o State Museum of Antiquities, Leyden) is on the staff of the State University at Leyden and lectures on the archaeology of Palestine.

NETHERLANDS EXCAVATIONS AT ABU-ROASH, EGYPT

Six miles north of the Giza pyramids, on the boundary between the desert and the cultivated area, lies the village of Abu-Roash, where the pilgrims from Mecca once used to gather and form into caravans for the journey back to the West, to Tunis, Algiers and West Africa. The name Abu-Roash is well-known to archaeologists by reason of the fact that on one of the plateaux in the fantastic massif that suddenly springs up out of the desert at that spot, Dedefra, one of the Pharaohs, who succeeded Cheops, builder of the great pyramid, built his tomb 4500 years ago, a stone pyramid that is now no more than a ruin. His retainers built their tombs, known as mastabas, on the surrounding mountain plateaux in order to be able to proceed to the Life Eternal in the company of their king. When, forty years ago, a French expedition investigated this pyramid and the surrounding graveyards it came across graves of a yet earlier period, viz. of the First Dynasty, about 3000 years B.C. The First Dynasty was the period during which the Egyptian hieroglyphic script was adopted – it according supplies us with the most ancient Egyptian inscriptions – and also the period during which the foundations were laid for the civilization of the Pharaohs. It was during this period that the forms and manners which characterize Egyptian civilization at the height of its flowering, the outward expressions of which can be seen in museums throughout the world, took shape. The aim of the first Netherlands archaeological expedition to Egypt was to search for data on the First Dynasty, the cradle of the Egyptian civilization that was to prevail in the Nile Valley for another 3000 years. The expedition was sponsored by the State Museum of Antiquities at Leyden and financed by the Netherlands Organization for Pure Scientific Research (Z.W.O.).

On February 14, 1957, the Kuftis began to remove the sand and gravel layer that covered the graveyard. The Kuftis are the skilled first-stage diggers. They come from the village of Kuft in Upper Egypt, their craft being handed down from father to son. Every year, during the digging season, from December to April, they set out under the direction of a "Trip" to perform the actual work of digging for the various expeditions, unskilled labourers for carrying the excavated sand and rubble to the dumping site being engaged on the spot.

During the two months occupied by the digging process, about a hundred graves were unearthed, most of them belonging to the period of the First Dynasty, through others from a later period, that of the Old Kingdom, were also discovered. These latter graves are deep pits hacked out of the rock, with a small room to the side, at the bottom of the pit, sealed off by a little wall of stones and clay tiles.

The First Dynasty graveyard proved to be largely untouched and to contain a wide variety of graves. The poorest of them are no more than circular or oval pits in the sand, in which the body reposes, wrapped in a reed mat. But even the poorest had been provided with gifts in the form of vessels for drink and spices. The larger graves are constructed of clay tiles and consist of a substructure in the hard layer above the natural rock and a superstructure penetrating above the surface. In the substructure there is the sepulchre, a rectangular apartment surrounded by store-rooms for the deceased's provisions. The body of the deceased is laid in a wooden sarcophagus, traces of which were found, while the entire substructure is covered by a wooden roof on which foundation is erected the superstructure of clay tiles, with a solid core of sand and rubble.

The ancient Egyptians believed that death was followed by eternal life and that in the hereafter the dead man would still need his body (whence the later practice of mummification) and all the necessities of daily existence. Accordingly his grave is supplied with food in the first place. This is kept in earthenware pitchers and dishes and in vessels of stoneware. The earthenware and the stoneware vessels represent the most important archaeological material originating from this period. The earthenware, red in colour and polished, is of great variety; there are pitchers for wine and beer, bowls and dishes for meat, fruit and corn. Some of the pitchers were even shaped like granaries. The stoneware vessels, perfect in their workmanship and manufactured from the numerous types of stone with which Egypt is richly endowed, are exceedingly handsome, including vases and dishes of limestone, marble, alabaster, dolomite and diorite. There were also a few sacrificial altars of limestone with open, carved pedestals. Other objects were found too, which give an impression of the culture of the time, firestone and brass tools, carved ivory, beads, etc. In one of the graves an earthenware through with a sliding lid was found, presumably a sarcophagus for a bird; under the skull of a child's skeleton an unusual earthenware head-support was found; around one woman's neck was a necklace of cornelian and amethyst beads from which hung an amulet of green faience work in the shape of a squatting baboon, which animal was sacred to Thoth, the god of wisdom.

In one family grave man, wife and child lay together, an unborn child lying in the mother's womb, suggesting a drama dating from the third millenium before Christ, for all the family had been buried at the same time. One child's grave revealed a very simple form of burial – the body had been enclosed in an earthenware pitcher.

The dead are laid to rest lying on their left sides, with knees drawn up, the head pointing to the North and the face turned towards the East. In some cases, however, the head pointed towards the West and the face towards the North. Does this perhaps indicate the meeting of two different cultures at the dawn of Egyptian history? A comparative study of the material found may provide an answer to this and other questions.

But the material is not yet complete. The expedition hopes to be able to continue its work in the same graveyard in the coming season.

A. KLASENS [1]

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[1] Dr. A. Klasens is on the staff of the State Museum of Antiquities at Leyden and is leading the Netherlands archaeological expedition in Egypt.

CHRONICLE

INSTITUTIONS[1])

International Institute for Land Reclamation and Improvement

Information: International Institute for Land Reclamation and Improvement, P.O.B. 45, Wageningen.

Aims of the Institute

The aims of the Institute, which was established in 1955, are as follows:

a. to collect and disseminate throughout the world information with regard to land reclamation and land improvement;

b. to promote and conduct applied scientific research into the reclamation or improvement of land, the agricultural reactions of such land, and the way in which it can be reclaimed or improved;

c. to stimulate and conduct research into schemes of agrarian development, land cultivation and the social and economic development of the areas concerned;

d. to promote and carry out field experiments in connection with *b* and *c*;

e. to take measures to further the realization of the above-mentioned aims.

The motive for founding the Institute lay in the belief held by those responsible that owing to the continual growth of the world's population there is on the one hand an increasing need for new agricultural land and on the other a need to intensify agriculture.

Tribute should be paid to the W.K. Kellogg Foundation, Battle Creek, Michigan, which, as a result of the Great Floods in the Netherlands on January 31st, 1953, put forward the idea of founding an institute of this kind and declared itself ready to lend financial support for its establishment.

In the constant and peaceful struggle to preserve existing land and to acquire new land by reclamation measures, some countries have gathered a great deal of knowledge and experience which might possibly be of benefit to other countries where new developments are taking place or appear to be imminent.

In order to help those interested to become more easily acquainted with the modern science of land improvement, this centre was to be set up with the task of collecting, working up and disseminating information in this particular field of science.

It was thought that in view of the intensive use made of the soil in the Netherlands, this country would be a suitable location for the centre. The Netherlands Government accordingly set up the institute by a special act and declared its willingness to take over responsibility for financing it in the future. The W.K. Kellogg Foundation's Donation will defray the entire running expenses for the first five years, and thereafter a diminishing proportion of them until the ninth year.

Collection of information

The assembling of literature, reports and experience from all parts of the world must form the basis of all further operations, being the primary condition of a scientific centre's existence. It is particularly important that the Institute should be able to obtain not only the current handbooks but also separate publications, reports, and records of experience relating in any way to its field of study.

The storehouse of Dutch knowledge on the subject is relatively easy of access. The situation in other countries, however, is entirely different. This material will have to be supplied voluntarily from other sources. To that end, contact will first have to be made with official bodies, universities and institutes.

An urgent appeal for co-operation is addressed to everyone whose work and interests puts him in a position to help. It is of great importance that the Institute should make the acquaintance of national experts in its sphere of activity, to enable them to be consulted or to enable reference to be made to them.

In this way a general survey will gradually be obtained of the regions in the world in which land reclamation and land improvement projects are being carried out, or in which there is still scope for such projects.

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[1]) Each number of the bulletin contains in this section a brief description of one or more scientific institutions in the Netherlands whose international orientation is clear from their organization and activities.

Promotion of research

The centre would fail in carrying out its task if it were not to build further on the foundations already existing. It is definitely the intention to stimulate or initiate supplementary research.

In order to achieve this, co-operation with the country concerned will always be sought, once it has been established in what part of the world such research can best take place. It must be expressly stated that the studies envisaged will, without exception, be those whose object is to fill gaps in present knowledge. Observations exclusively connected with the actual carrying out of projects will be left to specialist engineering companies and other competent bodies and institutions. There is here, of course, an indeterminate borderland area, where action will be taken in consultation with the parties interested.

Under the terms of reference defined above, the Institute declared its willingness to work with anyone requesting its assistance, as far as this falls within the scope of its work and the funds available permit.

In speaking of planned research, we have particularly in mind the carrying out of observations in experimental fields, designated for the purpose, either within the context of development projects or otherwise.

Dissemination of knowledge

One of the tasks of the experts connected with the Institute will be that of working up the study material collected on subjects of topical interest for publications in the main world languages. If the plan of collecting literature from all quarters of the globe is successful, it will be possible to conduct studies on a broad basis, which will likewise make it possible to apply the results of one country's experience more fruitfully in another country. However, in this same context descriptions of specific areas and their problems, of projects, or of national enquiries may also be very useful. In these latter cases the co-operation of experts from the countries concerned will be sought.

As regards the subjects for study, those first eligible for consideration are problems such as drainage, irrigation, desalinization, reclamation methods, the raising of crops on difficult soils and in transitional periods, lay-out and settlement of new areas, the reorganization and amalgamation of fragmentated holdings, etc.

Information and advice will be given via the distribution of printed matter and also by personal contacts. Attention should be drawn here to the possibility of colleagues from abroad being received by the Institute for a period of study, generally speaking on the recommendation of an official body in the country of origin, it being expected that, by way of reciprocity, the visitor will also provide data concerning his own country.

INTERNATIONAL COURSES[1])

(for basic data on forthcoming international courses, see last pages of this bulletin)

Postgraduate Course in Thoracic Clinical Science and Surgery

Organized by the Faculty of Medicine of the State University at Groningen.

After an interval of one year the Groningen Postgraduate Course in Thoracic Clinical Science and Surgery has resumed its activity in a Sixth Course, running from May 27 to June 15, 1957. The pattern of the former courses has been maintained, with some additions based upon experience gathered in recent times. As special features for 1957 should be mentioned: the early and late post-operative examination of patients in cases of cardiac surgery, lung resection, etc.; a survey of rapid chemical controls, in small samples of blood during hypothermic operations; a discussion on the organization of a small Respiratory Centre for the treatment of respiratory paralysis; a short refresher course in basic thoracic physiology.

The division into morning attendances, afternoon lectures and evening discussions has been maintained; summaries of all lectures will be distributed.

A collection of films on thoracic surgery will be available for projection in the surgical lecture room. Special arrangements with any one of the lecturers will be welcomed. As in the case of all former courses, close co-operation has been arranged with the Beatrixoord Sanatorium. Dr. J. K. Kraan and his staff have arranged for discussions and demonstrations in the Sanatorium. Three guest lecturers have promised to co-operate on this course. They are Professor A. G. Brom of Leyden, Dr. T. Holmes Sellors of London and Doctor A. Nadas of Boston. The subjects of their evening lectures will be found in the programme. The Chairman of the course is Prof. Dr. L. D. Eerland. The prospectus can be had on request from the Secretary, Prof. Dr. R. Brinkman, 21, Moddermanlaan, Groningen.

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[1]) For more extensive information on all international courses, see the previous issue (vol. 1, no. 1, March 1957) of this Bulletin.

International Course in Hydraulic Engineering

Organized by the Technological University at Delft and the Netherlands Universities Foundation for International Co-operation.

The first International Course in Hydraulic Engineering, which will start in Delft on October 22, 1957, appears to have attracted interest in all parts of the world. Final applications are now being dealt with from 17 countries in many parts of the world: Belgium, Canada, Ecuador, Egypt, Greece, Haiti, India, Iran, Israel, Mexico, Nigeria, Pakistan, Philippines, Portugese India, Syria, U.K. and the U.S.A. A number of Netherlands graduates are also likely to participate in the course.
Arrangements are being made to provide accommodation for the course on the spacious top floor of the Technological University's headquarter building at Delft.
Instruction in the three main branches of study (tidal and coastal engineering; reclamation; rivers and navigation works) will be given by twenty teachers covering twenty-nine subjects. The prospectus and detailed calendar of the course will be sent on request. Applications for admission to the course should be submitted to NUFFIC before July 15, 1957.

Closing of the Second International Course on Small-Scale Industries

Organized by the Training Courses and Research Foundation

The second International Course on Small-scale Industries, which opened on November 5, 1956, was officially closed on April 26, 1957 with the handing out of diplomas, a ceremony attended by representatives of the government, of the diplomatic corps, and several prominent guests. This course was attended by 7 participants, coming from the Philippines, Korea, Pakistan, Turkey, Yugoslavia, Brazil and Chile. During the first 3 months the participants followed a general programme of study, consisting of lectures and discussions and practical group exercises in small factories. Several excursions were held in connection with the subjects dealt with during the course. The lectures were given by prominent experts from universities, government departments and institutes, industrial organizations and consulting services and from the staff of the Training Courses and Research Foundation.
During the second half of the course the participants followed a special programme, drawn up for each participant individually, according to his particular interests.
The purpose of the special programme was to acquaint the participant with problems concerning:

- the establishment or development of new industries;
- the improvement of conditions in already established industries;
- the establishment of a training centre and of an institution or organization for the promotion of small-scale industries, and assistance thereto.

The study tasks assigned to each participant in his individual programme comprised:

- a survey of the selected branch of industry with relation to organizations or institutions in the Netherlands.
- a detailed plan for the establishment of a factory (training programme, etc.) under conditions similar to those in the participant's home country.

Each participant was required to do practical work in industry for 8–10 weeks, for which each was given a special assignment.
Participants were also given an opportunity to make additional visits to industries, or institutions in which they might be particularly interested.
At the end of the course the work submitted by the participants was discussed and evaluated by a committee of experts. All participants proved to have made satisfactory progress during the course and all were awarded the Diploma of the International Course on Small-scale Industries.

Opening of International Seminar on Land Development for Agricultural Uses at Wageningen

Organized by the International Agricultural Study Centre, the Ministry of Agriculture and the Agricultural University at Wageningen.

The seminar was opened on May 6 by the Director General of Agriculture, Ir. A.W. van de Plassche. 66 participants from 32 countries are taking part in the discussions and the introductory lectures are being given by 14 experts. Speaking on behalf of the Netherlands Government, Mr. van de Plassche regarded it as

For basic data on each course, see last pages of this bulletin.

highly important that special attention was being paid to land-development projects. The introduction of artificial fertilizers, modern agricultural machines and pumping systems can only meet with complete success if those employing them have received adequate training. Training is one of the first requirements for the success of development plans. On these grounds Mr. van de Plassche regarded this conference as of very great importance indeed. There is no difference of opinion as regards the need for co-operation between the various branches of science during the preparatory stages of land development projects, but the extent to which each branch must contribute does form a matter for discussion. Thus, when the first Zuyder Zee Polder was drained, the problem arose as to the number and size of the new villages to be founded, but it took ten years and the drainage of another new polder to analyse this problem thoroughly and to solve it in accordance with technical, agricultural and sociological requirements and possibilities.

Dr. A. de Vajda, speaking on behalf of the F.A.O., the world agricultural organization, expressed his admiration for the interest the Netherlands took in this organization. He regarded it as a happy circumstance that this event in the field of agricultural technics was taking place in the Netherlands. For it required vision and courage as well as knowledge to carry out projects in this field, and the Netherlands has proved itself to be pre-eminently a country where men were endowed with such qualities.

Prof. F. Hellinga, chairman of the organizing committee, then discussed the task of the various branches of science in the work of land development.

For basic data on each course, see last pages of this bulletin.

INTERNATIONAL SCIENTIFIC MEETINGS

Report on the Faraday Discussions, 1957

On April 15, 16 and 17 last, the Faraday Society held a congress on the continent of Europe for the first time in the 51 years of its existence, the scene of the congress being at the Royal Tropical Institute, Amsterdam. The subject of the discussion was "The Molecular Mechanism of Rate Processes in Solids".

The Faraday Society is a society of British chemists and physicists specially active in the borderland between chemistry, physics and biology. Many foreigners number among the thousands of the Society's members. The six-monthly congresses the Society organizes enjoy great popularity in England and abroad by reason of the topicality of the subjects chosen, the high standard of the discussion and their informal character. Lectures are not as a rule delivered during these congresses, the proceedings being limited to discussions based on papers circulated among the participants beforehand. The sole exception is the delivery of introductory addresses on the subjects to be discussed.

The first part of the congress (Relaxation Processes) was introduced by Professor Böttcher of Leyden, a member of the board of the Faraday Society; the second part (Steady-state processes not involving lattice re-arrangement) by Professor Seitz and Professor Koehler of Illinois, U.S.A. and the third (Steady-state processes involving lattice re-arrangement) by Professor De Boer of Delft.

The introductory addresses and discussions will be published in the usual manner in the Transactions or the Discussions of the Faraday Society.¹)

About 220 participants, representing more than twelve nationalities, took part in the congress. The Royal Netherlands Chemistry Society assisted in its organization, and the State, the municipality of Amsterdam and a number of business enterprises granted subsidies.

Eighth International Congress on Prophylactic Medicine

Organized by the Société Internationale de la Médecine Prophylactique (International Society of Prophylactic Medicine).

Place: Scheveningen (The Hague seaside resort)
Date: June 24–29, 1957.

Information: Netherlands Organization Committee, 8th International Congress on Prophylactic Medicine, 97, Lange Kerkdam, Wassenaar.

Programme: Prophylaxis of poliomyelitis: a) situation regarding the combating of infantile paralysis in various countries, b) combating of infectious diseases with special regard to tropical diseases; prophylaxis of rheumatism and cancer; research into sources and the combating of these; prophylaxis of old age (geriatrics and gerontology) with special regard

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¹) Information: The Secretary of the Faraday Society, 6, Gray's Inn Square, Gray's Inn, London W.C. 1.

to disorders of the blood circulation; mental hygiene; the significance of nutritional factors in the prevention of disorders of the metabolic process; occupational medicine: a) prevention of accidents with special regard to traffic accidents, b) noise disturbances in their relationship to hearing disorders and the neuroses, c) dust and silicon in their relationship to the occurrence of asthmatical and allergic conditions, d) medicine in relationship to sport: various addresses.

International Seminar on Regional Planning and Development

Organized for the Permanent International Centre for Regional Planning and Development by the Netherlands Universities Foundation for International Co-operation.

Place: The Hague, former Royal Palace, Noordeinde.

Date: July 1 – 6, 1957 (excursions on July 6 and 7).

Information: Netherlands Universities Foundation for International Co-operation, 27 Molenstraat, The Hague.

Programme: The work of the seminar will be devoted to the consideration, at the academic level, of general principles and general methodological experience.
Theme of the seminar programme: "Methods and Problems of Regional Planning for the Benefit of Man". This will be considered in a comprehensive manner, by studying the ecological, economic, social and cultural factors in relation to one another.
Six main subjects are on the discussion programme:

1. Planning as a process in the development of society. 2. History of the development of planning. 3. The concept of the region. 4. Planning as an operation. 5. The planning team. 6. The execution of the plan.

Graduate Seminar on Comparative Law,

under the auspices of the Netherlands Faculties of Law and organized by the Netherlands Universities Foundation for International Co-operation.

Place: Leyden University.

Date: July 1 – 7, 1957.

Information: Netherlands Universities Foundation for International Co-operation.

Programme: The discussion of legal problems in the field of private and public law, on a comparative basis. Languages: English and French. About fifty graduates from France, Great Britain, Switzerland, Belgium, Luxembourg and the Netherlands have been invited to participate.

Colloquium "Constructivity in Mathematics"

International Union of Logic, Philosophy and Methodology of the Sciences.

Place: Amsterdam, Mathematics Institute of the University of Amsterdam.

Date: August 26 – 31, 1957.

Information: Prof. Dr. A. Heyting, Mathematic Institute, University of Amsterdam, 121, Nieuwe Achtergracht, Amsterdam-C.

Meeting of the "Institut de Droit International"

Place: Amsterdam, Trippenhuis, 29, Kloveniersburgwal.

Date: September 18 – 27, 1957.

Information: International Bureau, Permanent Court of Arbitration, The Peace Palace, The Hague.

Programme: The programme of discussions will be arranged in due time.
The "Institut de Droit International", which was founded in 1873, is a purely scientific institution which aims at the promotion of international law – both public and private. Its honorary chairman is Prof. Charles de Visscher (Belgium), and Prof. J. P. A. François is the chairman for 1956/57. The institute has sixty members and 60 associates.
Associates are chosen by the Institute from among persons of different nationalities who have achieved reputations in the field of international law, as regards both theory and practice. Members are appointed from among the Associates. At present, the Netherlands group of the Institute consists, besides Prof. François, of Prof. J. H. W. Verzijl, Prof. F. M. van Asbeck and Prof. J. Offerhaus.
The Institute usually meets once every 18 months or 2 years in one of the countries which are represented in the Institute. There had been no meeting in the Netherlands since 1925.

International Conference on Student Training in Industry

Place: Technological University at Delft.

Date: September 19 – 21, 1957.

Information: Training Courses and Research Foundation, 76, Nieuwe Laan, Delft.

Programme: to promote an international exchange of experience between universities and industries with respect to student training in industry.

Symposium on the Public Health Aspects of Chronic Diseases

organized by the World Health Organization.

Place: University of Amsterdam.

Date: September 30 – October 5, 1957.

Information: Head of the Department of International Public Health of the Ministry of Social Affairs and Public Health, 73, Zeestraat, The Hague.

Programme: 1. to attempt to arrive at a preliminary evaluation of the magnitude of the problem of chronic diseases, with particular reference to the 40 – 64 year age-group. 2. to discuss aspects of public health such as the epidemiology, early detection and prevention of certain chronic diseases selected as examples from the whole group, and the care and rehabilitation of the patients affected.

LIBRARIES AND MUSEUMS

International Exchange[1])

According to information published by UNESCO, during 1954 no less than 216,000 new publications and reprints were issued in a total of 45 countries.

Not even the large science and university libraries are able to obtain copies of all the important works published in the different fields of knowledge by purchase or donation, and since the second world war there has accordingly been a considerable expansion in the international exchange of books. Numerous scientific works can be obtained in this way, and this applies particularly to the great variety of publications issued by the universities and learned societies, such as year books, magazines and dissertations. In Germany, for instance, no less than 8000 printed dissertations were published even before the second world war. The International Committee for the Exchange of Publications of the International Federation of Library Associations (I.F.L.A.) works to expand the exchange facilities and UNESCO, too, has launched important new projects, among other things by the publication a short time ago of its "Handbook on the International Exchange of Publications".

Annual reports on the matter are published in the I.F.L.A.'s "Proceedings" and these reports show that numerous measures are being taken to make exchange easier. The committee arranges, for instance, with official bodies and academic institutions for dissertations, magazines and other publications of especial interest but written in a language not widely known to be provided with summaries in English, French or German. It is worth mentioning in this respect that at least 35% of the dissertations published in the Scandinavian countries and in the Netherlands appear in one of these languages, while the others contain summaries in English or French. Besides this, the Japanese government has promised its co-operation as regards providing Japanese publications with summaries in one or other of the languages mentioned, while the Moscow Academy of Sciences has also agreed to provide such summaries in 20 of the more than 50 magazines it publishes.

Another encouraging feature is the fact that an important new beginning has been made in Germany with the introduction of the "Druckzwang", no less than 40 of the 80 faculties of the 14 different universities in the Federal Republic having already re-introduced the obligation for dissertations to appear in print.

As an example of the importance of the exchange of dissertations, mention may be made of the fact that, as far as the Netherlands are concerned, more than 350 printed dissertations were issued in the past year at Netherlands universities, an average of 100 copies of each dissertation having been made available for exchange at the various university libraries. In this way about 35,000 copies of dissertations issued in the Netherlands and other countries have been disseminated throughout the world and despatched to numerous university libraries in other countries.

During the past year 80 dissertations were issued at Leyden University, about 8000 copies of which have been disseminated. In addition, copies of ten different magazines published in Leyden were made available to hundreds of exchange addresses.

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[1]) This contribution comes from Dr. A .Kessen, librarian at the State University at Leyden and Chairman of the International Committee for the Exchange of Publications of the International Federation of Library Associations.

These brief figures may afford a clear idea of the considerable development which exchange facilities have undergone since the second world war, thereby making it possible for numerous publications not obtained by purchase or donation to be made available to those interested by means of such exchange.

State Museum of Geology and Mineralogy

The State Museum of Geology and Mineralogy at Leyden has undergone considerable reorganization during the last few years.

The following departments are at present in existence:

1. Mineralogy and Petrography;
2. Physical Geology;
3. Geology of the Netherlands;
4. History of Life on Earth.

In the first department the collections of raw minerals and gems are to be found, comprising the collections of King William I (owned by the museum) and of Dr. J. Erb (on loan).

An important addition is the temporary exhibition of precious and rare gems (Bode and Bodes Collection – on loan).

In the Department of Physical Geology paintings by the Javanese artist Raden Saleh depicting eruptions of Mount Merapi at night and by daylight are worth seeing. In the Department of the Geology of the Netherlands, the attention will be attracted by painted reconstructions of prehistoric Dutch landscapes, as well as by the large collection of mammals from the Ice Age. The history of life on earth may be studied with the help of a synoptic table and a chronologically-arranged collection of fossils from all periods of the earth's existence.

The museum is open on workdays from 10 to 12 a.m. and from 2 to 4 p.m., and on Sundays and holidays from 2 to 4 p.m.

Large groups can be shown round, on request, by a guide. For smaller groups commentaries can be given by tape recorder.

The World's Table, Exhibition at the Tropical Museum, Amsterdam [1]

On the occasion of the World Health Day on April 9 last, the Minister of Social Affairs and Public Health opened a new permanent exhibition entitled "The World's Table" at the Tropical Museum in Amsterdam.

This new exhibition gives a picture of what food supply really means, that is to say, of man and his food, seen from the social, economic, physiological and pathological points of view.

The exhibition has been organized by the Department of Tropical Hygiene and Geographical Pathology of the Royal Tropical Institute, where Dr. H. A. P. C. Oomen, the nutrition expert, is in charge of the work being done in the field of nutritional medicine.

Many factors play a rôle in nutrition and these are clearly illustrated at the exhibition. Directly associated with them is the social effect of correct or incorrect nutrition, and here we enter the field of such inevitably specialized subjects as medical nutrition and nutritional hygiene. The most important work being done in this field undoubtedly lies in the less-developed areas, interest in which has developed considerably in recent years. Food, which was still being thought of in mythological terms as late as the year 1900, has now become a matter of fuel for energy and the raw material for building normal, healthy human beings. To Eykman, the research worker, falls the honour of being one of the first to have discerned possibilities of improvement. When working as a prison doctor at Batavia his attention was caught by a disease which resulted in symptoms of paralysis in his patients and sometimes even in death. In 1896 he noticed further that pigeons fed on the prisoners' leavings also began to show the same symptoms. The investigation carried out into these circumstances brought to light that it was not here a case of bacterial or chemical poisoning, but of some shortage. It was clearly established that something was lacking in the prisoners' diet. Eykman succeeded in localizing this in the silver pellicle which was removed during the customary process of rice-polishing, and several well-known Dutch names and two Nobel prizes are associated with the discovery of the substance concerned. Twenty years ago Jansen, now emeritus professor at Amsterdam, isolated this matter, Vitamin B_1, in unadulterated form and shortly afterwards a method was discovered of producing it by artificial means in the laboratory.

This discovery has been of great value to the world's food supply and to medicine. Beri-beri prevailed at the time in the former Netherlands Indies but thanks to this discovery it proved possible to call a halt to the suffering involved. This does not mean, however, that an immediate end has come about to this scourge in other countries in the tropics. In some countries in the Far East thousands of people die every year of beri-beri, simply because the population there insists on eating highly polished white rice, that is so much more attractive in appearance. The vitamin concerned is removed from the rice in this way, though it can be restored to it by artificial means. Thus one begins by polishing away a vital ingredient of the main article of diet, because it is then regarded as more palatable and attractive to the eye. Then – with great difficulty and acumen – it is discovered what vital ingredient it is that has been lost and how this can be restored.

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[1] Dutch title: "De dis der Volkeren".

Of course, there are other vitamins besides vitamin B_1, as every child knows. There are those, for instance, which play a rôle in deafness and loss of sight among infants, thousands of such cases occurring, for example, in Japan and Indonesia. Here again great suffering, worry and misery are involved as a result of incorrect nutrition.

Faulty diet, as sketched above, is not necessarily due to a shortage of vitamins alone. There is protein as well, for example, discovered more than 130 years ago by the Dutch research chemist, Mulder, but it is only in the last few years that proper account is being taken of it in practical work. And the struggle is still going on, for whenever an attempt is made to improve the diet of the millions of inhabitants of the tropics, albumen, protein, the matter required for building up body tissue, still forms the stumbling block.

A wealth of scientific knowledge and practical experience has gone to make up this comparatively small but very well-arranged exhibition, which informs the public by visual means of a world problem, the size and weight of which is only now beginning to be realized in the western world. But the exhibition does more than this, for it puts forward ways and means whereby this problem may be solved.

FOREIGN STUDENTS IN THE NETHERLANDS

Number of foreign students according to nationality and university, 1955-1956

Nationality	Leyden	Utrecht	Groningen	Amsterdam	Amsterda Free Un
Austria	1	2	—	2	—
Belgium	6	4	—	6	1
Bolivia	1	—	—	—	—
Bulgaria	—	1	—	—	—
Canada	2	—	—	—	3
China	—	—	—	—	—
Cuba	—	—	—	—	—
Czechoslovakia	—	2	—	—	—
Denmark	1	—	—	2	—
Egypt	1	—	—	—	—
England	8	1	1	9	2
Esthonia	—	1	—	—	—
Finland	—	1	—	—	—
France	2	—	—	1	—
Germany	6	12	1	27	10
Gold Coast (Ghana)	—	—	—	—	—
Greece	1	—	—	—	—
Hungary	—	2	—	2	2
Iceland	1	—	—	—	—
India	—	—	—	1	—
Indonesia	122	45	14	202	46
Iran	—	—	2	—	—
Israel	—	2	—	5	1
Italy	4	1	1	—	—
Japan	—	—	—	—	2
Latvia	1	—	—	—	—
Libanon	—	—	—	—	—
Lithuania	—	1	—	—	—
Luxemburg	—	—	—	2	—
Mexico	1	—	—	—	—
Nigeria	1	—	—	—	—
North America	98	29	13	78	8
Norway	2	16	7	1	—
Poland	—	—	—	2	—
Spain	—	—	—	1	—
South Africa	7	6	11	11	14
Sweden	1	1	2	—	—
Switzerland	3	1	—	3	—
Yugoslavia	—	—	—	—	—
Stateless	9	5	3	15	—
Others	—	—	—	—	—
Total	279	132	55	370	89

Nymegen	Delft	Wageningen	Rotterdam	Tilburg	Total	
					1955/56	1954/55
—	1	—	1	1	8	8
12	7	—	—	5	41	31
—	—	—	1	—	2	1
—	—	—	—	—	1	—
—	—	—	—	—	5	5
—	—	—	1	—	1	2
—	1	—	—	—	1	1
—	—	—	—	—	2	—
—	—	1	1	—	5	5
—	—	—	—	—	1	—
—	1	1	1	—	24	20
—	—	—	—	—	1	—
—	1	—	—	—	1	1
1	1	1	—	—	6	7
7	10	—	5	—	78	65
—	1	—	—	—	1	—
—	—	—	—	—	1	1
—	—	—	—	—	6	—
—	—	—	—	—	1	—
2	—	—	—	—	3	4
5	253	4	53	5	749	664
—	—	—	—	—	2	2
—	5	—	—	—	13	11
—	—	—	—	—	6	6
—	—	—	—	—	2	1
—	—	—	—	—	1	—
—	1	—	—	—	1	—
—	—	—	—	—	1	—
—	—	—	—	—	2	3
—	—	—	—	—	1	—
—	—	—	—	—	1	—
1	3	—	4	—	234	230
—	1	—	—	—	27	19
—	—	—	—	—	2	—
—	—	—	—	—	1	—
—	—	—	—	—	49	51
—	—	—	—	—	4	2
—	1	1	—	—	9	15
—	3	—	—	—	3	—
5	15	3	4	2	61	53
—	—	—	—	—	—	24
33	305	11	71	13	1358	1232

Number of foreign students according to nationality and faculty, 1955-1956

Nationality	Theology	Law	Medicine		Science	Arts	Veterina Scienc
			Medicine	Dentistry			
Austria	2	1	1	—	—	—	—
Belgium	1	1	9	1	3	7	2
Bolivia	—	—	1	—	—	—	—
Bulgaria	—	—	1	—	—	—	—
Canada	2	—	1	—	1	1	—
China	—	—	—	—	—	—	—
Cuba	—	—	—	—	—	—	—
Czechoslovakia	—	—	1	—	1	—	—
Denmark	—	1	1	—	—	1	—
Egypt	—	—	—	—	1	—	—
England	—	3	10	—	2	4	—
Esthonia	1	—	—	—	—	—	—
Finland	—	—	—	—	—	—	—
France	—	—	—	—	—	3	—
Germany	19	4	7	1	9	10	1
Gold Coast (Ghana)	—	—	—	—	—	—	—
Greece	—	—	1	—	—	—	—
Hungary	—	—	1	1	—	3	—
Iceland	—	—	—	—	—	1	—
India	—	—	3	—	—	—	—
Indonesia	10	16	156	10	67	17	1
Iran	—	—	2	—	—	—	—
Israel	—	—	4	—	1	—	2
Italy	—	2	2	1	—	1	—
Japan	1	—	—	—	—	1	—
Latvia	—	—	—	—	—	1	—
Libanon	—	—	—	—	—	—	—
Lithuania	—	—	—	—	—	—	1
Luxemburg	—	—	—	—	1	1	—
Mexico	—	—	—	—	1	—	—
Nigeria	—	—	1	—	—	—	—
North America	9	1	182	—	9	20	—
Norway	1	—	23	1	—	—	1
Poland	—	—	—	—	2	—	—
South Africa	15	—	11	2	1	14	—
Spain	—	—	—	—	—	1	—
Sweden	—	—	2	—	—	1	1
Switzerland	1	—	3	—	1	2	—
Yugoslavia	—	—	—	—	—	—	—
Stateless	2	5	10	—	7	3	—
Others	—	—	—	—	—	—	—
Total	64	34	433	17	107	92	9

oint Faculties of rts and aw and/ r Economics (Social Science)	Joint Faculties of Sciences and Arts	Joint Faculties of Arts and Sciences and/or Medicine (Psychology)	Technical Science	Agricultural Science	Economics	Political and Social Science	Total	
							1955/56	1954/55
—	—	—	1	—	2	1	8	8
—	—	1	7	—	8	1	41	31
—	—	—	—	—	1	—	2	1
—	—	—	—	—	—	—	1	—
—	—	—	—	—	—	—	5	5
—	—	—	—	—	1	—	1	2
—	—	—	1	—	—	—	1	1
—	—	—	—	—	—	—	2	—
—	—	—	—	1	1	—	5	5
—	—	—	—	—	—	—	1	—
—	—	2	1	1	1	—	24	20
—	—	—	—	—	—	—	1	—
—	—	—	1	—	—	—	1	1
—	—	1	1	1	—	—	6	7
—	1	1	10	—	8	7	78	65
—	—	—	1	—	—	—	1	—
—	—	—	—	—	—	—	1	1
—	—	1	—	—	—	—	6	—
—	—	—	—	—	—	—	1	—
—	—	—	—	—	—	—	3	4
23	5	22	253	4	121	44	749	664
—	—	—	—	—	—	—	2	2
—	—	—	5	—	1	—	13	11
—	—	—	—	—	—	—	6	6
—	—	—	—	—	—	—	2	1
—	—	—	—	—	—	—	1	—
—	—	—	1	—	—	—	1	—
—	—	—	—	—	—	—	1	—
—	—	—	—	—	—	—	2	3
—	—	—	—	—	—	—	1	—
—	—	—	—	—	—	—	1	—
2	—	—	3	—	5	3	234	230
—	—	—	1	—	—	—	27	19
—	—	—	—	—	—	—	2	—
2	—	2	—	—	2	—	49	51
—	—	—	—	—	—	—	1	—
—	—	—	—	—	—	—	4	2
—	—	—	1	1	—	—	9	15
—	—	—	3	—	—	—	3	—
2	1	1	15	3	9	3	61	53
—	—	—	—	—	—	—	—	24
29	7	31	305	11	160	59	1358	1232

Number of foreign students according to faculty and university, 1955-1956

Faculties	Leyden		Utrecht		Groningen		Amsterdam		Amsterdam Free Univ.	
	1955/56	1954/55	1955/56	1954/55	1955/56	1954/55	1955/56	1954/55	1955/56	1954/
Theology	2	—	18	12	2	2	5	5	35	39
Law	19	16	3	7	—	—	7	6	4	4
Medicine:										
Medicine	153	131	54	60	43	41	167	142	7	5
Dentistry	—	—	14	12	3	4	—	—	—	—
Science	43	40	13	13	2	2	47	50	2	3
Arts	32	19	11	12	1	1	29	31	6	7
Veterinary Science .	—	—	9	9	—	—	—	—	—	—
Joint Faculties of Arts and Law and/or Economics (Social Science) . . .	17[1]	11	5	5	2	1	1	1	1	—
Joint Faculties of Sciences and Arts	—	—	3	3	—	—	4	9	—	—
Joint Faculties of Arts and Sciences and/or Medicine (Psychology) . .	13	17	2	4	—	—	9	—	4	6
Technical Science .	—	—	—	—	—	—	—	—	—	—
Agricultural Science	—	—	—	—	—	—	—	—	—	—
Economics	—	—	—	—	2	4	45	45	29	31
Political and Social Science	—	—	—	—	—	—	56	51	1	—
Total 1955/56 .	279	—	132	—	55	—	370	—	89	—
Total 1954/55 . .	—	234	—	137	—	55	—	340	—	95

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[1] incl. 5 Indology.

Nymegen		Delft		Wageningen		Rotterdam		Tilburg		Total	
55/56	1954/55	1955/56	1954/55	1955/56	1954/55	1955/56	1954/55	1955/56	1954/55	1955/56	1954/55
2	—	—	—	—	—	—	—	—	—	64	58
1	1	—	—	—	—	—	—	—	—	34	34
9	5	—	—	—	—	—	—	—	—	433	384
—	—	—	—	—	—	—	—	—	—	17	16
—	—	—	—	—	—	—	—	—	—	107	108
13	4	—	—	—	—	—	—	—	—	92	74
—	—	—	—	—	—	—	—	—	—	9	9
3	—	—	—	—	—	—	—	—	—	29	18
—	—	—	—	—	—	—	—	—	—	7	12
3	1	—	—	—	—	—	—	—	—	31	28
—	—	305	283	—	—	—	—	—	—	305	283
—	—	—	—	11	12	—	—	—	—	11	12
—	—	—	—	—	—	71	47	13	15	160	142
2	3	—	—	—	—	—	—	—	—	59	54
33	—	305	—	11	—	71	—	13	—	1358	—
—	14	—	283	—	12	—	47	—	15	—	1232

MISCELLANEOUS

Honorary Doctorates on the Occasion of the 325th Dies Natalis of the University of Amsterdam

On the occasion of the 65th lustrum of the University of Amsterdam on June 3rd last, honorary doctorates were conferred on the following persons.

Faculty of Theology

J. J. BUSKES, minister of the Reformed (Hervormde) Dutch Church at Amsterdam.

The award of this honorary doctorate honours a well-known Netherlands minister who during 34 years of service has not only continued his studies in addition to the normal exercise of his office, but has, above all, been a stimulating influence on the thought of very many people in and outside the Dutch Reformed Church by reason of his wealth of theological knowledge and his original opinions on a large number of subjects.

Faculty of Law

Professor DR. MAX GUTZWILLER, "professeur honoraire" in the faculty of law at Fribourg University, Switzerland.

This honorary doctorate has been conferred on Dr. Gutzwiller on account of the unique character of his publications in many fields and in the field of international civil law particularly; also on account of the real contribution his work in the field of jurisprudence has made to the unification of civil law and international civil law.

Professor Gutzwiller's versatility and erudition, his cosmopolitan mind and his knowledge of systems of law and literature have made a great contribution to the success of the conferences he has attended. His unflagging energy, his brilliant style and his understanding of human beings and nations have undoubtedly had a highly stimulating influence.

Faculty of Medicine

Professor DR. N. H. SWELLENGREBEL, emeritus professor of parasitology in the University of Amsterdam and former director of the Department of Tropical Hygiene and Geographical Pathology of the Royal Tropical Institute.

Dr. Swellengrebel, by origin a biologist, has been active all his life in the field of medicine. His speciality is tropical diseases, particularly those of an epidemic character and he is one of the world's best malaria experts.

The functions in which Dr. Swellengrebel has served the Netherlands, many other countries, the League of Nations and the United Nations are highly numerous. He has been guest professor at John Hopkins University and Harvard University in the United States and is an honorary member of learned societies in France, Belgium, England, U.S., South Africa, India and Peru. He has visited Indonesia on repeated occasions for stays of varied duration.

Faculty of Science

Professor Dr. W. J. JONGMANS of Heerlen, former professor of palaeobotany in the State University of Groningen and former director of the Geological Office of the Netherlands Mining Area at Heerlen.

This honorary doctorate has been granted on the ground of Dr. Jongmans' special merits in the field of the study of carbon in and outside the Netherlands, as a result of which he has become an expert of world renown.

Dr. Jongmans enjoys the special honour of being a foreign member of the London Geological Society, while the Royal Netherlands Mining Society has conferred on him its highest award in the field of geology, the Waterschoot van der Gracht medal. Dr. Jongmans is an honorary doctor of the University of Glasgow and a corresponding member of scientific societies in Germany and Spain.

Faculty of Arts

Dr. H. E. VAN GELDER, former director of the Arts and Sciences Department of the Municipality of The Hague.

Dr. van Gelder's career began in the world of archives and was little by little determined by the growing extension of his field of activity. With science as his point of departure, he developed into a person of great social feeling, who has been a driving force in the museum world in its widest sense. Dr. van Gelder's unique significance to the cultural life of the Netherlands finds its expression in the award of this honorary doctorate.

Faculty of Economics

Professor Dr. G. L. GONGGRIJP, emeritus professor at the Rotterdam School of Economic and emeritus professor extraordinarius in the Faculty of Economics at Amsterdam.

Dr. Gonggrijp, who began his career as a civil servant in the former Netherlands Indies (1909–1916), subsequently devoted himself to higher education and has sought from the very beginning to find a synthesis between colonial and western economic theory.

By reason of his thorough knowledge of western socio-economic theories and of the economic and, more generally, sociological structure of society in the former Netherland Indies (both the autochthonous and the western) and finally by his knowledge of the other "underdeveloped" areas, he has been able to perform exceptionally fruitful work in this field by arriving at a happy synthesis between western theory and eastern society.

Faculty of Political and Social Science

Senator J. W. FULBRIGHT, member of the U.S. Senate since 1945 and since 1949 member of the Senate Foreign Relations Committee and the Senate Banking and Currency Committee.

Senator Fulbright, who is 51 years old, studied political science at the University of Arkansas. He obtained his M.A. degree at Oxford as a "Rhodes Scholar", after which he studied in Vienna and obtained a law degree at George Washington University, where he also taught for some time.

It was due to Senator Fulbright's initiative that the Fulbright Act came into being, mention of which is made in the following article in this section, as far as it concerns the act's significance for academic exchange with the Netherlands.

The Fulbright Act has made possible an unprecedented mobilization of driving forces in education and the arts and sciences and has been of uncommonly great significance for scientific progress. In 1953, for example, 1606 American citizens taught and studied abroad exclusively within the framework of this act, while 2976 non-Americans went to the U.S.A. The majority of these were (university) students and those teaching and carrying out research work in the academic field. By the conferment of this honorary doctorate, the Netherlands is paying homage to Senator Fulbright for his services – indirect but very real – to science, culture and humanity.

The Fulbright Program in the Netherlands[1]

When, after the second world war, Senator Fulbright had the brilliant idea of allowing the many countries in debt to the U.S.A. to pay these debts in their own currency and receive in their midst cultural messengers from America, Holland was one of the first countries to accept this proposal. Ever since 1949 the so-called "Fulbright Program" has been in operation in the Netherlands which means that every year a number of American lecturers, research workers, teachers, and students come to this country to lecture or study in our universities and to teach in our secondary schools.

The importance of the program will become evident, when we learn that since its start, 227 American students, 59 lecturers and 53 research workers have been guests at our universities. Our secondary schools have profited by the presence of 126 teachers.

It will be clear that some branches of study are more apt to attract foreigners than others. The Technological University at Delft is known all over the world. So is the Low Temperature Laboratory at Leyden or the Aerial Survey Institute at Delft. Agriculture, so widely practised in the Netherlands and the subject of scientific study at the Agricultural University at Wageningen, will always draw students to Holland. Those interested in Dutch seventeenth century art are numerous in America and where can they study this art better than in the country of its origin?

It may also happen that a Dutch university lecturer is well known in America by reason of his books or because he has taught in the U.S. He has found a following and students want to come to hear him in his own country. Then there are a good many teachers, lecturers or students of Dutch origin who have some knowledge of our language. They often want to acquaint themselves with the "land of their fathers".

Needless to say, the Fulbright program works in the opposite direction too. Although it does not pay Dutch students or teachers or professors wanting to spend an academic year in the U.S.A., it *does* give travel grants, so that those concerned need not trouble about the high cost of transportation. From the fact that from 1949 onward 372 Dutch students, 74 teachers, 43 lecturers and 119 research workers received these travel grants, it is clear that the Dutch nation, too, greatly profits by the Fulbright Program.

It is interesting to read that the Dutch Government signed the Fulbright Agreement for a period of twenty years. So hundreds of Americans and Dutchmen will have an opportunity to experience what living and working in another continent means. And they will feel deeply grateful to Senator Fulbright for his vision.

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[1] This article has been written by Dr. J. J. van Dullemen, Executive Officer of the United States Educational Foundation in the Netherlands, the administrative agency of the Fulbright Act in the Netherlands.

25th Anniversary of the T.N.O.

On May 1st 1957 the Central National Council for Applied Scientific Research in the Netherlands (T.N.O.) was able to look back on 25 years of activity.

To celebrate this occasion the Ministers of Education, Arts and Sciences (Dr. Cals) and of Economic Affairs (Professor Zijlstra) called a meeting on behalf of the government at the Kurhaus, Scheveningen, on May 3rd last. In addition to addresses by these ministers, speeches were also delivered by Professor C. B. Biezeno of the Technicological University at Delft, Professor N. G. Bakhuizen van den Brink of the Netherlands Organization for Pure Scientific Research and Ir. A. G. Engel of the Artificial Silk Union. The meeting was followed by a very well-attended reception.

The daily press and many different journals carried articles bearing witness to the interest taken in the T.N.O.'s work and the great appreciation with which it is meeting.

Further details will be given in the following number of this bulletin.

Professor Vening Meinesz' Farewell Lecture

On May 9th last Professor F. A. Vening Meinesz, the well-known geophysicist and former director of the Royal Netherlands Meteorological Institute (De Bilt) delivered his farewell lecture at Delft on the occasion of his retirement. Dr. Vening Meinesz won international fame for the measurements of the force of gravity which he carried out on board submarines of the Netherlands Navy, the best known of these being the trip he made with the "K XVIII" in 1934–35. Some readers may perhaps remember the grandiose reception he was given in San Francisco in 1937.

Dr. Vening Meinesz also carried out research on board foreign submarines. Thus the American Navy, for instance, put a submarine at his disposal in 1928, to enable him to carry out oscillation observations in the Gulf of Mexico and the Caribbean Sea on the request of the Geographical Laboratory of the Carnegie Institute.

Professor Vening Meinesz has descended to the sea floor more than a thousand times. He is a man of very great stature and in the confined space of the submarine it was necessary more than once to make special arrangements so that he could sleep stretched out at full length.

Award for well-known geologist

The Royal Netherlands Society of Geology and Mining has awarded the bronze Van Waterschoot van der Gracht medal to Dr. Ir. H. A. Brouwer, professor at the University of Amsterdam, in recognition of his services in the field of geology and mining.

Professor Brouwer has carried out research work in Scandinavia, North and South America, South Africa and the Netherlands Indies. The period of his greatest activity came after 1910 when he travelled across the Indonesian Peninsular, performing important work particularly in Sumatra, Timor and various other eastern isles.

In 1918 he became a professor at the Technological University at Delft, in 1922 guest professor at the University of Michigan, in 1925 professor extraordinarius at the State University at Utrecht, and from 1929 on taught in Amsterdam, where he was among other things the founder of the Geological Institute of the University of Amsterdam.

Professor Brouwer presented no fewer than 47 mining engineers and geologists for their degrees and has occupied a position of eminence in international geological circles for many years. His acute mind, his strength of will and passion for hard work, combined with his feeling for the artistic, resulted not only in his choosing an academic career but also in his coupling this with many adventurous journeys of exploration, which took him to some of the most out of the way regions on earth.

Last year, on the occasion of Professor Brouwer's seventieth birthday, a commemorative volume was published, composed of contributions by well-known geologists from many different countries of the world.

New Institute of Marine Biology at Curaçao

The Caribbean Sea lends itself ideally to deep-sea research. Curaçao, the main island of the Dutch Antilles, lies in the middle of the Caribbean and it should therefore be no cause for surprise that a lively interest is taken there in the study of oceanographical phenomena. This interest recently took on palpable form with the founding of an Institute of Marine Biology, the first stone of the Institute's headquarters having been laid by H.R.H. Prince Bernhard of the Netherlands on the occasion of the recent royal visit to the West Indian islands.

The lower floor of the building contains an octagonal aquarium chamber, a laboratory equipped with numerous tables for microscopic research, and the workrooms. The library is on the floor above. There is also a lecture hall, where courses and exhibitions can be held. Numerous organisms found in the Antilles area are on display in a circular exhibition case; in addition to the aquaria, there is a wide trough along the interior wall of the ground floor, in which various marine animals, such as mussels and sea-anemones are unwilling but well-cared for guests. A special beach has been installed for life normally found in the sand.

Dr. T. S. Zaneveld, who has rendered highly valuable service in this field in past years, is the director of the new institute. We may take this opportunity to express agreement with his view that the near future will yield valuable results in the fields of marine biology, oceanography, meteorology and submarine geology in the Caribbean Sea. It need not be said that such research will meet with all the more success, if performed within the framework of "Caribbean co-operation", which is becoming ever closer in the area.

Netherlands Ratify the European Convention on the Equivalence of Diplomas Leading to Admission to Universities

With the recent ratification by the Netherlands, the Convention is now in force between the following countries: Belgium (European territory), Denmark, France, Germany (including Berlin), Greece, Great Britain and Northern Ireland, Iceland, Ireland, Italy, Luxemburg, the Netherlands (European territory), Norway. According to the provisions of the Convention, each contracting party shall recognise for the purpose of admission to the universities situated in its territory, admission to which is subject to State control, the equivalence of those diplomas awarded in the territory of each other contracting party which constitute a requisite qualification for admission to similar institutions in the country in which these diplomas were awarded. (Each contracting party reserves the right not to apply the above-mentioned provision to its own nationals).

For the purpose of the Convention:

a. the term "diploma" shall mean any diploma, certificate or other qualification, in whatever form it may be awarded or recorded, which entitles the holder or the person concerned to apply for admission to a university;

b. the term "universities" shall mean:

1. universities;
2. institutions regarded as being similar in character to universities by the contracting party in whose territory they are situated.

The Atom — International Exhibition at Schiphol, Amsterdam

From July 1st until September 15th next an international exhibition entitled The Atom (Het Atoom) is to be held at the world airport at Schiphol, near Amsterdam. The aim of this exhibition will be to make clear to the public what science has achieved in the field of the atom and above all to provide an idea of present and future possibilities of using nuclear energy *for the benefit of mankind.* The municipality of Amsterdam has made 6,500,000 guilders ($ 1,600,000) available. The building of the exhibition hall will cost 3,000,000 guilders and the organization and management of the exhibition another 3,000,000.

It is particularly gratifying that interesting submissions will be on display from many different countries. Thus France will be sending authentic material from Madame Curie's famous laboratory. Models will be on display of the reactors used in England, those, for example, in operation at Calder Hall. Norway will be making the contribution for the Norway-Netherlands Joint Nuclear Research Establishment. Belgium has also promised its co-operation. The U.S.A. – the country where the production of nuclear energy has made such enormous strides – will be sending a very large exhibit. Among the exhibits will be what is known as the "Hotlab", which will demonstrate the extreme care with which the materials used for generating atomic energy must in some cases be handled.

In the centre of the exhibition a "swimming pool reactor" will be erected, which will show the process whereby uranium atoms are split. As may already be known, this reactor was made in America and purchased by the Ministry of Education, Arts and Sciences for use later on in advanced technical education.

The following organizations and enterprises abroad will be lending their co-operation: the Belgian Union for the Peaceful Development of Atomic Energy (V.Z.W.D.), Brussels; the Union of Burma Atomic Energy Centre, Rangoon; Atomic Energy of Canada Ltd., Chalk River; Commissariat à l'Energie Atomique, Paris; Atomic Energy Authority, London; Pye Ltd., Cambridge; Institute for Atomenergi A.B., Kjeller, Norway; Atomic Energy Commission, New York; A.M.F. Atomics Inc., New York; Detroit Edison Company, Detroit; U.S. Information Service, U.S.A.; C.E.R.N., Geneva.

A large number of organizations and enterprises which play a leading role in the field of atomic energy and related fields in the Netherlands are also lending their co-operation.

Although not part of nuclear physics in the strict sense of the word, the electron is so important a counterpart of the atom that the exhibition would lose if it did not include electronics, which have undergone such rapid development in the modern world. It is therefore worthwhile mentioning that it will also be possible for visitors to this exhibition to acquaint themselves with such interesting instruments as the electronic microscope, which makes it possible to observe objects a thousand times smaller than those which can be seen with the ordinary optical microscope. The way the electronic computor and radar instruments work will also be demonstrated.

At various points in the exhibition hall the exhibits will be explained by word of mouth. Special short lectures to do with the exhibition will be held. In addition documentary films dealing exclusively with problems connected with the development of atomic energy will be shown in two small cinemas.

In order to afford an impression of the amazingly rapid development technical science has undergone in the last fifteen years, the astonishing progress in flying will be used to confront the visitor, as it were, with possibilities of more rapid development in the application of atomic energy, which has been rather modest so far. This astonishing growth in air transport will also be depicted by models of various aircraft including those from the earliest days of flying, more particularly of the aircraft in which Lilienthal and the Wright Brothers first went up into the air.

There will be exhibits showing the application of nuclear physics in the fields of biology, archaeology, hydraulics, agriculture and medicine, as at present practised in the Netherlands. The exhibition will also help the visitor to understand something of the miraculous work done by the radio telescope at Dwingelo, which telescope can determine on earth what is happening in the hydrogen atom in the Milky Way 100,000 light years away.

Man's first source of energy was his muscle power, then water, wind, coal and oil. Scientific organizations from many countries of the world have now contributed to this exhibition, the largest so far of its kind, which will inform the visitor to Schiphol in the year 1957 in worthy fashion of the positive aspects of the new atomic energy era.

The Spreading of Radio-active Pollution caused by Atomic Bombs over the Earth by Air Currents

Summary of the address delivered by Professor Dr. H. P. Berlage at the meeting of the Natural Science Department of the Royal Netherlands Academy of Sciences and Humanities on April 27, 1957.

A large number of countries, the Netherlands included, have been taking measurements for some years now of the gradual increase and marked changes in the concentration of radio-active pollution in the atmosphere resulting from atomic bomb tests. The Netherlands lie in the centre of the belt of prevailing western winds into which artificially produced radio-active matter from all experimental sites in the northern hemisphere is conveyed within a period of a few weeks. The greater part of this matter is brought down by rain or snow. The fine dry dust descends very slowly indeed.

The spread of radio-active matter over wide areas can also take place across the wind as a result of eddies. In addition, each time an atomic bomb is exploded, radio-active dusts are flung into the atmosphere at various different heights, at which heights they are carried by air currents in highly different directions. Since tests began to be made with H-bombs, the stratosphere has also become contaminated, and observations carried out up to stratosphere levels and theoretical observations, too, have shown that many years can elapse before pollution in the stratosphere descends to the region of the earth.

The speaker had been able to ascertain that concentrations of artificially-generated radioactivity found in the air and in precipitation – in this country as well, for instance – correspond closely with the amount of radio-active dust we know to have been generated by atomic bombs explosions and also with the distance covered by this dust. If, like the speaker, one disregards the fatal circumstances that can occur in the vicinity of an atomic bomb explosion, the most attention should, perhaps, be paid to the fact that at the present time a store of radio-active material of about a hundred million curies (to use the physicist's expression) is floating in the stratosphere and is already spread fairly evenly out over the entire surface of the earth.

DOCTORAL DISSERTATIONS

Theology

BOEKE, R. *Divinatie, met name bij Rudolf Otto;* (Divination, with special reference to the work of Rudolf Otto). Leeuwarden, 1957.
With summaries in German and English.
State University at Leyden.

Law

WASSENBERGH, H. A. *Post-war international civil aviation policy and the law of the air.* The Hague, 1957.
State University at Leyden.

WEEBERS, A. J. M. *Contrôle op internationale kartels. Over de volkenrechtelijke grenzen van nationale en internationale kartelcontrôle;* (The control of international cartels. Concerning the limits under international law of national and international control on cartels. Zwolle, 1957.
With a summary.in French.
Roman Catholic University at Nymegen.

Medicine

DE BAKKER, A. *Veranderingen in de phosphatide fractie van de dooier, tijdens de bebroeding van het kippenei;* (Chemical changes occurring in the phosphatide fraction of yolk and embryo during incubation of fertilized hen eggs). The Hague, 1957.
With a summary in English.
State University at Leyden.

DOORENMAALEN, W. J. VAN *Histo-serologisch onderzoek betreffende de localisatie van lensantigenen in de embryonale kippenlens;* (Histo-serologisch investigation into the localization of lens antigens in the embryological chicken lens). Amsterdam, 1957.
With a summary in English.
University of Amsterdam.

DRIFT, J. H. A. VAN DER *The significance of electro-encephalography for the diagnosis and localisation of cerebral tumours.* Leyden, 1957.
With summaries in Dutch, French and German.
State University at Groningen.

ECKSTEIN, H. *Critische beschouwingen over het postthrombotische syndroom;* (Critical remarks concerning the postthrombotic syndrome). Oss, 1957.
With summaries in French and English.
State University at Leyden.

GERRITSEN, J. W. *Fonocardiografie. Betekenis voor de diagnostiek van enige aangeboren en verworven hartgebreken;* (Phonocardiography. Its significance in the diagnosis of some inherited and acquired defects of the heart). Groningen, 1957.
With a summary in English.
State University at Groningen.

HOEKSTRA, H. L. *De diagnostiek bij bloedingen in de tweede helft van de zwangerschap;* (The diagnosis of haemorrhages in the second half of pregnancy). Assen, 1957.
With a summary in English.
State University at Groningen.

KEIJSER, S. P. *Stralenbehandeling van "germinal tumors" van de testis;* (Ray treatment of germinal tumours of the testis). Assen, 1957.
With a summary in English.
State University at Groningen.

KOOI, M. W. VAN DER *Experimenteel onderzoek naar de electrische activiteit in sinusknoop, boezems en atrio-ventriculairknoop;* (Experimental investigation into electrical activity in the sinus node, bosoms and atrio-ventricular node). Amsterdam, 1957.
With a summary in English.
University of Amsterdam.

LEEUW, J. DE *De bloedingen na de bevalling in oorlogstijd;* (Post-partum haemorrhages in wartime). 1957.
With summaries in French, German and English.
University of Amsterdam.

LUMEY, J. L. J. *The methods of psychology and psychiatry. A methodological analysis of various ways of approach with special reference to H. J. Eysenck's personality studies.* Assen, 1957.
University of Amsterdam.

METSELAAR, D. *A pilot project of residual insecticide spraying in Netherlands New Guinea, contribution to the knowledge of holo-endemic malaria.* Utrecht, 1957.
With a summary in Dutch.
State University at Leyden.

MOLENAAR, I. *Ontkalking van harde weefsels. Een histotechnische studie;* (Decalcification of hard tissues. A histotechnical study). Utrecht, 1957.
With a summary in English.
State University at Utrecht.

OFFERHAUS, L. *Borderline cases of Hodgkin's disease.* Assen, 1957.
With a summary in Dutch.
University of Amsterdam.

PINXTER, P. R. J. *Een verbindingsklem voor vaattransplantatie. Een experimenteel onderzoek;* (Blood vessel connecting forceps. An experimental inquiry.). Bergen op Zoom, 1957.
With a summary in English.
Roman Catholic University at Nymegen.

SCHIE, W. VAN *Phaeochromocytoma.* Utrecht, 1957.
With summaries in English,
French and German.
State University at Utrecht.

SLIKKE, W. VAN DER *Over de betekenis van bepalingen van het bloedvolume in de geriatrische chirurgie;* (Concerning the significance of the determination of the blood volume in geriatric surgery). 1957.
With summaries in English, French and German.
State University at Utrecht.

STOCKMANN, C. H. J. *Histogenese en groei van naevi;* (Histogenesis and growth of nevi). Haarlem, 1957.
With a summary in English.
University of Amsterdam.

TIDDENS, H. A. W. M. *Het renale syndroom van De Toni met dwerggroei;* (The renal De Toni syndrome with dwarfism). Amsterdam, 1957.
With a summary in English.
State University at Utrecht.

VAESSEN, M. L. J. *Psychische aspecten van de insulinecoma-therapie;* (Psychic aspects of the insulin coma-therapy). Alkmaar, 1957.
With a summary in English.
State University at Leyden.

VEER, R. VAN DER A. *Enige onderzoekingen over het richtinghoren;* (Some investigations on directional hearing). Bergen op Zoom, 1957.
With a summary in English.
University of Amsterdam.

VELZEBOER, C. M. J. (Mej.) *Egocentral and reciprocal localization in squint.* Amsterdam, 1957.
With a summary in Dutch.
University of Amsterdam.

Natural Science

BERG, C. VAN DEN B. *The L spectra of some iron-group metals. An investigation with the cylinder spectrometer.* The Hague, 1957.
State University at Groningen.

BOER, J. C. DEN *Etude géologique et paleomagnétique des montagnes du Coiron. Ardèche, France;* (Geological and paleomagnetic study of the Montagnes du Coiron, Ardèche, France). Utrecht, 1957.
State University at Utrecht.

BRUG, J. *Synthese en antivirale eigenschappen van gesubstitueerde acetophenonen;* (Synthesis and anti-viral characteristics of substituted acetophenones). The Hague, 1957.
With a summary in English.
Free (Reformed) University at Amsterdam.

DEENEN, L. L. M. VAN *Enige onderzoekingen over de biochemische relaties tussen hypophyse en schildklier;* (Some investigations on the biochemical relations between hypophysis and thyroid). Utrecht, 1957.
With a summary in English.
State University at Utrecht.

DRENTH, J. *Een röntgenografisch onderzoek van excelsine, edistine en tabakszaadglobuline;* (A röntgenographical investigation into excelsin, edisten and tobacco-seed globulin). The Hague, 1957.
With a summary in English.
State University at Groningen.

HAVINGA, E. E. *Bijdrage tot de kennis van de structuur van polyhalogeniden;* (Contribution to the knowledge of the structure of polyhalides). The Hague, 1957.
With a summary in English.
State University at Groningen.

HOESSELS, E. L. M. J. *Evolution de la plaque prechordale d'ambystoma mexicanum; sa différenciation propre et sa puissance industrice pendant la gastrulation;* (Evolution of the pre-chordal disc of ambystoma mexicanum; its natural differentiation and its output capacity during gastrulation). Maastricht, 1957.
With a summary in Dutch.
State University at Utrecht.

HOUTEN, S. VAN *De kristalstructuur van P_4S_3 en P_4S_5;* (The crystal structure of P_4S_3 and P_4S_5). The Hague, 1957.
With a summary in English.
State University at Groningen.

KRISTENSEN, I. *Differences in density and growth in a cockle population in the Dutch Wadden Sea.* 1957.
State University at Leyden.

MEIJER, A. E. F. H. *De wijziging in samenstelling van de phosphatidefractie bij de kieming van glycine soya en het spruiten van allium cepa;* (The change in the composition of the phosphatide fraction on the germination of glycine soya and the sprouting of allium cepa.) Amsterdam, 1957.
With a summary in English.
State University at Leyden.

MINNEMA, L. *De reactiviteit der vinylgroepen in groeiende vinyl-divinyl copolymeren;* (The reactivity of vinyl groups in growing vinyl-divinyl copolymers). The Hague, 1957.
With a summary in English.
State University at Leyden.

NIE, R. VAN (Miss) *Hormone dependence of transplanted ovarian tumours in mice.* The Hague, 1957.
With a summary in Dutch.
State University at Utrecht.

NOTTROT, R. *Fundamental notions in metric curve theory.* Leyden, 1957.
State University at Leyden.

PIKAAR, N. A. *De bepaling van de vetzuren in bloedserum;* (The determination of the fatty acids in blood serum). Edam, 1957.
With a summary in English.
State University at Utrecht.

SINNEMA, Y. A., *Vorming en reacties van 1,1– diazidoaethers;* (The formation and reactions of 1,1-diazidoaethers). The Hague, 1957.
With a summary in English.
State University at Groningen.

SPIEGEL, I. W. VAN *Geometry of aggregates.* Assen, 1957.
State University at Groningen.

VEGTER, G. C. *Over vrije radicalenreacties geïnitieerd door donkere elektrische ontladingen;* (Concerning free radical reactions initiated by silent electrical discharges). The Hague, 1957.
With a summary in English.
State University at Groningen.

VINCENT, J. E. *Onderzoekingen met thiamine-S^{35};* (Investigations with thiamine-S^{35}). The Hague, 1957.
With a summary in English.
University of Amsterdam.

WINTER, C. VAN (Miss) *Space-time rotations and isobaric spin.* The Hague, 1957.
State University at Groningen.

Arts

FRIEZER, E. *De ordening van Servius Tullius;* (Servius Tullius' system of classification). The Hague, 1957.
University of Amsterdam.

HOORN, H. J. W. VAN *Poésie et mystique. Paul Claudel, poète chrétien;* (Poetry and Mystics. Paul Claudel, a Christian poet). Geneva, 1957.
State University at Leyden.

HUGO, A. M. *Calvijn en Seneca. Een inleidende studie van Calvijns Commentaar op Seneca, De Clementia, anno 1532;* (Calvin and Seneca. An introductory study on Calvin's Commentary on Seneca, De Clementia, 1532). Groningen, 1957.
With a summary in English.
State University at Utrecht.

LINDEN, M. P. VAN DER *De burggraven van Montfoort in de geschiedenis van het Sticht Utrecht en het Graafschap Holland (±1260–1490);* (The burgraves of Montfort in the history of the Bishopric of Utrecht and the County of Holland). Assen, 1957.
University of Amsterdam.

RUIJGH, C. J. *L'élément achéen dans la langue épique;* (The Achaian Element in Epic Language). Assen, 1957.
University of Amsterdam.

VELD-LANGEVELD, H. M. IN 'T *Migratiemotieven, migratiebeheersing en hun selectieve betekenis. Een onderzoek in Oost-Groningen;* (Motives for migration, control of migration and their selective significance. An inquiry in East Groningen). Assen, 1957.
State University at Utrecht.

WRHASPATI-TATTWA. *An old Javanese philisophical text. Critically edited, (transl.) and annotated by Sudarshana Devi.* Nagpur, 1957.
State University at Utrecht.

Economics

KRUSEL, G. R. *Bedrijfseconomische beschouwingen over het industriële vestigingsplaatsvraagstuk;* (The problem of the siting of industry considered from the point of view of business economics). Leyden, 1957.
With a summary in English.
University of Amsterdam.

PHILIPS, P. A. M. VAN *Public finance and less developed economy, with special references to Latin America.* The Hague, 1957.
University of Amsterdam.

PRASAD, P. *Some economic problems of public enterprises in India.* Leyden, 1957.
University of Amsterdam.

TERVOOREN, E. P. M. *Statenopvolging en de financiële verplichtingen van Indonesië;* (State Succession and Indonesia's financial obligations). The Hague, 1957.
With a summary in English.
Netherlands School of Economics at Rotterdam.

Political and Social Science

GODDIJN, J. J. O. *Katholieke minderheid en Protestantse dominant. Sociologische nawerking van de historische relatie tussen Katholieken en Protestanten in Nederland en in het bijzonder in de provincie Friesland;* (Catholic Minority and Protestant Dominant. Sociological aftermath of the historical relationship between Catholics and Protestants in the Netherlands with special reference to the province of Friesland). Assen, 1957.
With summaries in French, English and German.
Roman Catholic University at Nymegen.

Technical Science

GEERLINGS, M. *Eigenschappen van glaselectroden en neutralisatieprocessen met betrekking tot de automatische regeling van de p H;* (Characteristics of glass electrodes and neutralization processes with reference to the automatic regulation of the p H). The Hague, 1957.
With a summary in English.
Technological University at Delft.

KLINKENBERG, J. W. *Aromatic formation in the polymerization of ethene with heteropoly acid catalysts.* The Hague, 1957.
Technological University at Delft.

KNUDTZON, N. H. *Theoretical comparison of fluctuation noise characteristics for various modulation methods with special view to multi-channel system planning.* The Hague, 1957.
With a summary in Dutch.
Technological University at Delft.

MACLEAN, C. *Nieuwe onderzoekingen over magnetische resonantie;* (Recent research on magnetic resonance). The Hague, 1957.
With a summary in English.
Technological University at Delft.

MAN, J. C. DE *Over aardappelvezel en haar toepassing bij het ensileren van gras;* (Potato pulp and its use as an addition for grass silage). Delft, 1957.
With a summary in English.
Technological University at Delft.

MULLER, J. *Directe hydratatieprocessen van aetheen en propeen ter bereiding van aethyl- en isopropylalcohol;* (Direct hydratation processes of ethene and propene for the preparation of ethyl and isopropyl alcohol). The Hague, 1957.
With a summary in English.
Technological University at Delft.

THOENES, D. *Stofoverdracht bij stroming door een vast bed van korrelig materiaal;* (Mass transfer in packed beds). The Hague, 1957.
With a summary in English.
Technological University at Delft.

Agricultural Science

BOS, L. *Heksenbezemverschijnselen, een pathologisch-morfologisch onderzoek;* (Witch's broom phenomena, a pathomorphological study). Wageningen, 1957.
With a summary in English.
Agricultural University at Wageningen.

HUYSMAN, C. A. *Veredeling van de aardappel op resistentie tegen Heterodera rostochiensis wollenweber;* (Breeding for resistance to the potato-root eelworm Heterodera Rostochiensis Wollenweber). Wageningen, 1957.
With a summary in English.
Agricultural University at Wageningen.

JENSMA, J. R. *Teelt en veredeling van bloemkool;* (Growing and improvement of cauliflower). Wageningen, 1957.
With a summary in English.
Agricultural University at Wageningen.

POLITIEK, R. D. *De invloed van erfelijkheid en milieu op de samenstelling van de melk bij Friese koeien en de praktische mogelijkheid van selectie op het eiwitgehalte;* (The influence of heredity and environment on the composition of the milk of Frisian cows and the practical possibilities of selection on the protein content). Drachten, 1957.
With a summary in English.
Agricultural University at Wageningen.

OTHER RECENT SCIENTIFIC PUBLICATIONS

Publications Sponsored by NUFFIC

The following publications and doctoral dissertations were sponsored by the Netherlands Universities Foundation for International Co-operation and can still be ordered from this Foundation (27, Molenstraat, The Hague) or from the usual booksellers.

1. Eastern and Western World

Selected Readings, with a foreword by Prof. S. Hofstra.
W. van Hoeve Ltd, The Hague/Bandung 1955.
181 pages, D.fl. 7,50.

"Eastern and Western World" was the motto of the summer sessions of the Netherlands Universities held in 1951 and 1952 in the University of Leyden.
The relations between East and West, having passed in the course of centuries through several different phases, are entering upon a new era in which more stress is being laid upon human values and human dignity.
Whatever our estimation of the problems involved may be, whatever road we may wish to follow towards their solution, one thing seems clear; there is a need for more knowledge of social conditions in East and West and better understanding of these problems is required.

2. Regional Planning and Development

by Arthur Glikson.
A.W. Sijthoff's Uitgevers Mij, Leyden 1955.
120 pages, D.fl. 8,—.

In this book Arthur Glikson emphasizes those aspects of Regional Planning and Development which demand the understanding and active co-operation of all concerned with the problems of the so-called "under-developed" and "over-developed" regions.
It is a slightly revised version of six lectures delivered by the author in 1953 at the Foundation's Institute of Social Studies at The Hague.
The ideas advanced by the author emerged out of the practical work of the Planning Department of the Government of Israel, in which he participated, and out of his theoretical work at the Israel Institute of Technology.
The following aspects of the subject are discussed in the book: The Background of Regional Planning – Natural Land Use – Regional Structure as a Basis to Urban Structure – Geography and Geotechnics – A Comparison between Planning Problems in the United States, Holland and Israel – Two Examples of Regional Planning in Operation.
The book is illustrated with 21 maps and graphs. A bibliography has been added for the benefit of those interested in a further examination of the subject.

3. Developments towards Self-Government in the Caribbean

A Symposium held under the auspices of the Netherlands Universities Foundation for International Co-operation at The Hague, September 1954.
W. v. Hoeve Ltd, The Hague/Bandung 1955.
285 pages, cloth bound, D.fl. 9,50.

As a sequel to a Bristol symposium on Principles and Methods of Colonial Administration (1950) and a second symposium held at the University of Bordeaux (1952) the NUFFIC symposium was dedicated to recent constitutional developments in the territories served by the Caribbean Commission. Initiated by Prof. Logemann and Van Lier of Leyden University and Miss Johanna Felhoen Kraal of the Royal Tropical Institute, Amsterdam, the symposium was attended by American, British, French and Netherlands experts on Caribbean problems such as Prof. Henry Wells, University of Puerto Rico, Prof. C. M. MacInnes, Bristol and Prof. Eugene Revert and Luc Fauvel, France. Three aspects of the subject were treated: the present constitutional situation, a sociological analysis of the political situation, and a survey of the policies adopted for the fulfilment of national aspirations.
The data papers are published in full with a summary in the other language (French/English), while a summary of the discussions and a bibliography are given at the end of the volume.

4. Hands Across Frontiers

Case Studies in Technical Co-operation.
Editors: Howard M. Teaf Jr. and Peter G. Franck.
A.W. Sijthoff's Uitgevers Mij, Leyden 1955.
Distributed in the United States of America by Cornell University Press, Ithaca, New York 1955.
580 pages, in the U.S.A. $ 5.50, outside the U.S.A. D.fl. 20,90.

While the terminology may be new, the fact of technical assistance has been with us for decades, perhaps, in a way, for centuries. Since the second World War, however, there has been such an expansion in technical assistance, in number and size of schemes, that the whole matter of development has taken on new aspects. And there is an increasing awareness that one knows far too little about social dynamics – the process of social, particularly economic, development.

Most of the problems of development activity arise under one of the following headings: 1) how to develop sound policies for agencies participating in development programs; 2) how to train people to participate in them; 3) how to inform the interested public about the programs.

Since 1951 Haverford College has been training young people for participation in development projects. With the aid of the Rockefeller Foundation, the College has prepared a series of case studies on technical assistance as appropriate teaching materials.

By the publication of these studies in the present volume, a most useful manual has been put at the disposal of those policy makers and students who are working on the theory of development.

The following eleven case studies are presented:

1. "Technical Assistance through the United Nations: The U.N. Mission in Afghanistan, 1950–53", by Peter G. Franck.
2. "Origins of a Private Village Improvement Project: American Friends Service Committee in India", by Howard M. Teaf, Jr.
3. "Land Reform in Taiwan", by Robert B. Moody.
4. "Mechanized Farm Services in Brazil (Empresa de Machanizacao Agricola, Soc. Anonima)", by Alexander Gouvitch.
5. "Agricultural Extension Work through the Servicio in Peru", by John C. Sandelmann.
6. "The Hookworm Campaign in Ceylon", by Jane Philips.
7. "Operation Bultiste: Promoting Industrial Development in Saudi Arabia", by Carleton S. Coon, supplemented by Peter G. Franck.
8. "Building Roads and a Highway Administration in Turkey", by Robert S. Lehman.
9. "Introducing Democratic Employment Practices in Japan", by Edgar C. McVoy.
10. "An Experiment in Resettlement in Northern Nigeria", by William B. Schwab.
11. "Work Programs in International Aid: Employment of Arab Refugees, 1949–1952", by Hertha Kraus.

5. Papers of the Conference on Underdeveloped Areas,
(held at The Hague on June 20th and 21st 1955).

Published by the Netherlands Universities Foundation for International Co-operation, The Hague, 1955.
Mimeographed English translation D.fl. 2.

This conference was organized by the Society of Research Scholars, the Netherlands Youth Committee, the Netherlands Student's Council, and the Netherlands Universities Foundation for International Co-operation. It followed upon the address which Her Majesty the Queen of the Netherlands made to Netherlands Youth at Leyden on June 18th, 1955. Four Dutch experts gave their views respectively on "The Problems of the Underdeveloped Areas", "The Economic and Financial Aspects", "The Sociological and Psychological Aspects" and "The Political Aspects".

6. Leaps and Approaches towards Self-Government in British Africa

by Prof. F. M. van Asbeck.
Published by W. van Hoeve Ltd., The Hague/Bandung, 1956.
32 pages, D.fl. 1.50.

The author, who is at present Professor of International Law and of the Comparative Law of Non-autonomous Countries at the University of Leyden and who served before World War II in the Government of the Dutch East Indies and on the League of Nations' Permanent Mandates Commission, turns the headlights on an area where rapid political, economic and social changes are doing away with the old, colonial pattern. Indeed this process is so rapid that the observer has difficulty in keeping abreast of developments. The present brochure cannot claim, therefore, to be fully up-to-date – it is the English translation of an academic address delivered in the year 1953 – but it does provide the reader with a remarkably vivid tableau of some recent events that have stirred British Africa.

7. An Econometric Model for Development Planning.
(with special reference to India).

Dissertation, Netherlands School of Economics at Rotterdam, 1953.
by Dr. Chand Mal Palvia
85 pages, D.fl. 5.—.

8. Development of Economic Ideas in India (1880-1914).

Dissertation, University of Amsterdam 1954.
by Dr. Panikkanparambil Kesavan Gopolakrishnan
105 pages, D.fl. 7.50.

9. The Share of Wages in National Income

Dissertation, Netherlands School of Economics at Rotterdam, 1954.
by Dr. Ashok Mitra
128 pages, D.fl. 7.50

10. Problems of Unemployment in India,

Dissertation, Netherlands School of Economics at Rotterdam, 1955.
by Dr. Moti Lal Gupta
183 pages, D.fl. 10.—

11. Technical Progress and the Process of Economic Development.

Dissertation, Netherlands School of Economics at Rotterdam, 1954.
by Dr. H. Banerji.
92 pages, D.fl. 5.—

SCHOLARSHIPS AND FELLOWSHIPS FOR FOREIGN STUDENTS, TENABLE IN THE NETHERLANDS1)

Government of the Netherlands

Ministry of Education, Arts and Science, The Hague.
Exchange Scholarships of the Netherlands.
Netherlands-Belgian Cultural Convention.

1. Unrestricted.
2. Netherlands.
3. Available to *Belgian* nationals; must have university degree or have completed several years' higher study.
4. Fl. 185 per month plus tuition.
5. 1 to 6 months[1].
6. The Convention provides for exchanges of approx. 90 months; number awarded depends on the duration of each scholarship[2].
7. Ministère de l'Instruction Publique, Brussels, Belgium, in May.

Government of the Netherlands

Ministry of Education, Arts and Sciences, The Hague.
Exchange Scholarships of the Netherlands.

a. Anglo-Dutch Cultural Convention.
b. Netherlands-French Cultural Convention.

1. Unrestricted.
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3. Available to *a. British* nationals; must have a university degree or have completed several years' higher study; *b.* nationals of *France* who have completed several years' higher study.
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7. *a.* The Controller, Education Division, The British Council, 65 Davies Street, London, W. 1 England, by March 12;
   b. Office National des Universités et Ecoles Françaises, 95 Boulevard Raspail, Paris-6e, France, in May.

Government of the Netherlands

Ministry of Education, Arts and Sciences, The Hague.
Netherlands Government Scholarships.

1. Unrestricted.
2. Netherlands.
3. Available to nationals of *a.* Australia; *b.* Austria; *c.* Canada; *d.* Denmark; *e.* Germany; *f.* Iceland; *g.* India; *h.* Israel; *i.* Norway; *j.* Spain; *k.* Sweden; *l.* Yugoslavia; must have university degree or have completed several years' higher study.
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7. *Australia:* Office of Education of the Commonwealth of Australia, Canberra; *Austria:* Bundesministerium für Unterricht, Minoritenplatz 1, Vienna; *Canada:* Depart-

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1) The figures in the margin refer to: 1: field of study; 2: where tenable; 3: conditions; 4: value; 5: duration; 6: number available; 7: address for applications.
A "1" added after the duration of the scholarship indicates that it is renewable or extendible. A "2" added after the number of scholarships available indicates that the same award will be offered for 1957-'58.

ment of External Affairs, Ottawa; *Denmark:* Ministry of Education, Copenhagen; *Germany:* Deutscher Akademischer Austauschdienst, Nassestrasse 11a, Bonn; *Iceland:* Ministry of Education, Reykjavik; *India:* Ministry of Foreign Affairs, New Delhi; *Israel:* Netherlands Legation, Jerusalem; *Norway:* Kontoret for culturelt samkven med utlandet, Oslo; *Spain:* Direccion General de Relaciones Culturales, Madrid; *Sweden:* The Swedish Institute, Kungsgaten 42, Stockholm; *Yugoslavia:* Commission for Foreign Cultural Relations, Bircaninova 6, Belgrade.

Government of the Netherlands

Ministry of Education, Arts and Sciences, The Hague.
Exchange Scholarships of the Netherlands. Cultural Convention with Luxembourg.

1. Unrestricted.
2. Netherlands.
3. Available to nationals of *Luxembourg;* must have completed several years' higher study.
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5. 1 to 3 months[1].
6. The Convention provides for exchanges of approx. 8 months; number awarded depends on the duration of each scholarship[2].
7. Ministère de l'Education Nationale, Luxembourg.

Government of the Netherlands

Ministry of Education, Arts and Sciences, The Hague.
Exchange Scholarship of the Netherlands. Cultural Convention with Italy.

1. Unrestricted.
2. Netherlands.
3. Available to nationals of *Italy*, must have university degree or have completed several years' higher study.
4. Fl. 250 per month plus tuition.
5. 8 months.
6. 3[2].
7. Direzione Generale delle Relazioni Culturali, Ministere degli Affari Esteri, Piazza Firenze 27, Rome, Italy.

Government of the Netherlands

Ministry of Education, Arts and Sciences, The Hague.
Netherlands Government Scholarships.

1. Unrestricted.
2. Netherlands.
3. Available to *South African* graduates and undergraduates.
4. Fl. 2.500 plus tuition.
5. 1 academic year.
6. 10[2].
7. Genootschap Nederland-Suid-Afrika, p/a Prof. Dr. D. Pont, Waterkloofweg 266, Pretoria, South Africa.

Government of the Netherlands

Ministry of Education, Arts and Sciences, The Hague.
a. Hendrik A. van Coenen Torchiana Scholarship. *b.* Edward W. Bok Scholarship. *c.* Hendrik Willem van Loon Scholarship.

1. Unrestricted.
2. Netherlands.
3. Available to nationals of U.S.A.; age preferably under 28; must have bachelor's degree; applicants in the field of medicine must have M.D. degree; some knowledge of Dutch language desirable.
4. Fl. 2.000 plus tuition.
5. 1 academic year.
6. *a.* 1[2]; *b.* 1[2]; *c.* 1[2].
7. U.S. Student Department, Institute of International Education, 1 East 67th Street, New York 21, N.Y., U.S.A. by 1 March.

Government of the Netherlands

Ministry of Education, Arts and Sciences, The Hague.
Scholarships for Netherlands Summer Courses.

1. Subjects included in Dutch university summer courses.
2. Netherlands.
3. Available to nationals of *Italy* and *Spain.*
4. Fl. 400.
5. 1 month.
6. 7[2]: 3 to Italy; 4 to Spain.
7. *Italy:* Direzione Generale delle Relazioni Culturali, Ministero degli Affari Esteri, Piazza Firenze 27, Rome;
   Spain: Dirección General de Relaciones Culturales, Madrid.

Government of the Netherlands

Ministry of Education, Arts and Sciences, The Hague.
Unesco-Netherlands Government Fellowships.

1. Natural sciences, cultural activities.
2. Netherlands.
3. Available to nationals of *Ceylon*, *Turkey* and *Venezuela;* should be mature, already established in their professions; must have knowledge of Dutch, English, French or

German. Awards are granted for study at universities or institutions of university level.
4. Fl. 2.250 plus tuition fees and other facilities.
5. 6 months.
6. 3 (1 to each country).
7. Ministry of Education or Ministry of Foreign Affairs in candidate's own country.

Free (Reformed) University of Amsterdam

162, Keizersgracht, Amsterdam.
Scholarships.

1. Theology, philosophy, arts, medicine, law, natural sciences (chemistry, physics, mathematics, biology), social and economic sciences.
2. Netherlands: Free Reformed University of Amsterdam.
3. Available to nationals of *all countries;* must be educated to university entrance standard. Awards are to enable recipients to acquire academic knowledge based on Christian principles.
4. Maintenance, tuition and an amount for incidental expenses.
5. 1 academic year.
6. 4[2].
7. Secretary of the International Relations Committee, Vrije Universiteit te Amsterdam, Keizersgracht 166, Amsterdam, April 15.

French Institute in Amsterdam

Maison Descartes, 11, Museumplein, Amsterdam.
Donor: French Government.
Research Fellowships.

1. Unrestricted.
2. Netherlands: Maison Descartes, Amsterdam.
3. Available to *French* nationals engaged in study or research work for which documentation is available only in the Netherlands. Candidates must submit a plan of study with their applications.
4. Fl. 325.— (covers maintenance); room provided at Maison Descartes; transportation Paris-Amsterdam in certain cases.
5. 1 to 10 months, between October 1 and July 31.
6. Unspecified[2] (grants awarded are for a total of 50 months).
7. M. Henri Gouhier, professeur à la Sorbonne, 21 Boulevard Flandrin, Paris-16e, France, by May 1.

Hague Academy of International Law

Peace Palace, The Hague.
Scholarships for the Academy's summer sessions, offered by various governments and by private and public institutions.

1. International law.
2. The Hague Academy of International Law.
3. Applicants' antecedents should qualify them to benefit from the tuition.
4. in 1957: Fl. 300, covering approximate expenses during the four-week session. Travelling expenses will not be refunded.
5. July 15 – August 10, 1957.
6. No more than two scholarships can be awarded in respect of each country during the same year. This rule does not apply to scholarships instituted in a country for the benefit of its nationals, the award of which has been entrusted to the Curatorium of the Academy.
7. Secretariat of the Hague Academy of International Law, The Peace Palace, The Hague, before April 1.

Netherlands Organization for Pure Scientific Research

60, Lange Voorhout, The Hague.
Exchange Fellowships for Scientific Research.

1. Scientific research.
2. Netherlands.
3. Available to *French* nationals who are scientific research workers of proven ability, in exchange for similar facilities for Netherlands research workers offered by the National Council for Scientific Research in Paris.
4. Covers transportation, maintenance and research facilities.
5. Varies in individual cases.[1]
6. Unspecified[2]; as the convention between the Netherlands and the CNRS provides for exchanges of 30 months of fellowships in an academic year, number awarded depends on duration of each award.
7. Monsieur le Directeur du CNRS, 4e Bureau Echanges, 13 quai Anatole-France, Paris-7e, France.

Netherlands Universities Foundation for International Co-operation

27, Molenstraat, The Hague.
a. Scholarships for study at the Institute of Social Studies; *b.* Fellowships for study at the Institute of Social Studies; *c.* A limited number of other scholarships and fellowships.

1. *a.* Social Sciences (Two-Year Course),
   b. Public Administration,
   c. Unrestricted.
2. *a–b.* Institute of Social Studies, The Hague, *c.* The Netherlands.
3. Available to nationals of *all countries;* candidates must have for *a.* M.A. degree in social sciences, or its equivalent; for *b.* graduate (or equivalent) intellectual standard at and preferably some years of experience at middle or higher level of the public service; for *c.* advanced graduate status.
4. *a.* Fl. 6080 (Two-Year Course in the Social Sciences),
   b. Fl. 2100 (Six-Month Course in Public Administration),
   c. Unspecified.
5. *a.* 16 months; *b.* 6 months; *c.* unspecified.
6. Unspecified[2].
7. *a–b.* The Rector, Institute of Social Studies, 27, Molenstraat, The Hague: *a.* by 30 June; *b.* by 15 October; *c.* Netherlands Universities Foundation for International Co-operation, 27, Molenstraat, The Hague.

Utrecht Observatory

2, Zonnenburg, Utrecht.
Exchange Assistantship.

1. Astronomy.
2. Netherlands: Utrecht Observatory.
3. Available, on an exchange basis, to students of theoretical or observational astrophysics in *any country.*
4. Exchange of salary.
5. Approx. 3 months.
6. 1[2].
7. Utrecht Observatory, University of Utrecht, 2, Zonnenburg, Utrecht.

BASIC DATA ON INTERNATIONAL COURSES OFFERED IN THE NETHERLANDS[1])

(see also the "International Courses" Section in this Bulletin)

Institute of Social Studies

Information: The Rector, Institute of Social Studies, 27, Molenstraat, The Hague.

COURSES OFFERED:

a. Two-year Course in the Social Sciences. The study of social change and economic development in the widest sense. The course leads to the degree of Master of Social Sciences.
REQUIREMENTS FOR ADMISSION: Advanced academic standing in one of the social sciences.
NEXT COURSE STARTING: September 1957. Closing date for applications: June 30, 1957.

b. Six-Month Advanced Diploma Course in Public Administration.
REQUIREMENTS FOR ADMISSION: Advanced academic status and preferably some years of experience in the public service.
NEXT COURSE STARTING: January 1958. Closing date for applications: October 15, 1957.

c. Six-Month Advanced Diploma Course in Economic Planning and Social Accounting.
REQUIREMENTS FOR ADMISSION: Advanced academic status and preferably some years of experience in the public service.
NEXT COURSE STARTING: January 1958. Closing date for applications: October 15, 1957.

d. Six-Month Advanced Diploma Course in Social Welfare Policy for Low Income Countries.
REQUIREMENTS FOR ADMISSION: Practical experience in social work, preferably at the teaching and public service level.
NEXT COURSE STARTING: September 1957. Closing date for applications: June 30, 1957.

International Training Centre for Aerial Survey

Information: The Dean, International Training Centre for Aerial Survey, 3, Kanaalweg, Delft.

COURSES OFFERED:

a. Photogrammetry, including cartography, topography and theory of errors;

b. Photogeology;

c. Use of air photographs for soil survey and other agricultural purposes;

d. The same for forestry and other sylvicultural purposes;

e. Air photography and survey navigation.
Lectures and instruction are given in English, French or German.
Courses are adapted to individual needs, and may therefore vary from some months to two years.

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[1]) Courses are given in English only, unless otherwise mentioned.

REQUIREMENTS FOR ADMISSION: Dependent upon the individual student's programme of study: NEXT COURSE(S) STARTING: September and January.

Technological University at Delft, Netherlands Universities Foundation for International Co-operation

Information: Netherlands Universities Foundation for International Co-operation, 27, Molenstraat, The Hague.
COURSE OFFERED:
International Course in Hydraulic Engineering. Three branches of study:

1. Tidal and coastal engineering;
2. Reclamation;
3. Rivers and navigation works.

The course lasts twelve months and leads to a Diploma.

REQUIREMENTS FOR ADMISSION: a degree in engineering of a recognized institution of higher learning. *Next course starting:* October 1957 (at Delft).

Training Courses and Research Foundation

Information: Training Courses and Research Foundation, 76, Nieuwe Laan, Delft.

COURSE OFFERED:

International Course on Small-Scale Industries. Theoretical and practical training in investigating and solving the specific problems of small-scale industries, and in finding a methodology which can be applied to the establishment of new industries. Successful attendance of the course leads to a diploma.

REQUIREMENTS FOR ADMISSION: B.Sc. or M.Sc. in engineering or equivalent degree of recognized universities.

Next Course: November 1957 until end of April 1958.

Hague Academy of International Law

(Founded in 1923 with the support of the Carnegie Endowment).

Information: Secretariat, Hague Academy of International Law, The Peace Palace, The Hague.

COURSES OFFERED:

a. Summer Session, 1957: eleven series of lectures on selected topics of private and public international law, given in French and English. A certificate may be awarded to regular attendants. Advanced students may apply for admission to the examination leading to the Diploma.
REQUIREMENTS FOR ADMISSION: Study and/or practical experience in international law: university professors and students, civil servants, judges, lawyers, diplomatic, consular and international officers.
Next course: July 15 until August 10, 1957. 28th Session.

b. 1957 Session of the Centre of Studies and Research in International Law and International Relations (established in 1957 with the aid of the Rockfeller Foundation). The detailed study of the legal question relating to the decisions of the International Court of Justice in the CORFU CHANNEL Case (April 9, 1949) and in the NOTTEBOHM Case (April 6, 1955). Languages: French and English. The Curatorium may issue a testimonial based on the quality of the student's work during the session.

REQUIREMENTS FOR ADMISSION: Advanced academic degree, such as the Academy's diploma, or proof of at least three years' actual practice in international affairs.
Next course starting: August 19 until September 28, 1957.

Free (Reformed) University of Amsterdam

Information: Secretary of the International Relations Committee, Vrije Universiteit, 162 Keizersgracht, Amsterdam.

COURSE OFFERED:

Summer Course 1957. Language: English.
REQUIREMENTS FOR ADMISSION: usual requirements for university study.
Next course: September 3 until September 10, 1957.

International Agricultural Study Centre, Ministry of Agriculture and Agricultural University at Wageningen

Information: Secretary, International Agricultural Study Centre, 32, Prof. Ritzema Bosweg, Wageningen.

COURSE OFFERED:

International Meeting on Methods and Programme Planning in Rural Extension. Languages: French, English, German.

REQUIREMENTS FOR ADMISSION: the course is especially devised for extension officers.
Next course: July 2–31, 1957.

Ministry of Education, Arts and Sciences

Information: Congress Organization Office, Ministry of Education, Arts and Sciences,

3, R. J. Schimmelpennincklaan, The Hague.

COURSES OFFERED:

a. Summer Course on Dutch Language and Culture, Utrecht, 1957.

REQUIREMENTS FOR ADMISSION: Participants must be French-speaking persons, interested in Dutch language and culture by virtue of their profession or for other reasons.

Next course: Augustus 19 to September 12, 1957.

b. Vacation courses for Belgian teachers, Amsterdam, 1957 (organized in co-operation with the Belgian Ministry of Public Education).

REQUIREMENTS FOR ADMISSION: Participants must be engaged in teaching in Belgium.

Next course: For secondary school teachers: July 8 to 23, 1957. For elementary school teachers: July 29 to August 13, 1957.

Roman Catholic University at Nymegen — Netherlands Universities Foundation for International Co-operation

Information: Netherlands Universities Foundation for International Co-operation, 27, Molenstraat, The Hague.

COURSE OFFERED:

1957 Summer Session. Subject: "The Community of Mankind and Cross-cultural Relations".

REQUIREMENTS FOR ADMISSION: usual requirements for university study.

Next course: July 16–August 3, 1957.

Netherlands Universities Foundation for International Co-operation

COURSE OFFERED:

"Survey of the Netherlands" (to be held in The Hague).

REQUIREMENTS FOR ADMISSION: usual requirements for university study.

Next courses: July 8–14, 1957 and August 19–28, 1957.

The following Netherlands Universities participate in the Netherlands Universities Foundation for International Co-operation:

- State University at Leyden
- State University at Groningen
- State University at Utrecht
- University of Amsterdam
- Free (Reformed) University of Amsterdam
- Roman Catholic University at Nymegen
- Technological University at Delft
- Agricultural University at Wageningen
- Netherlands School of Economics at Rotterdam
- Roman Catholic School of Economics at Tilburg

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